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A Brief Encounter with Ian Chamberlain's model of this West Coast Main Line junction

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Athearn Genesis 2 Diesel DCC/Sound	Canadian National #9 SD70ACe
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Athearn Genesis 2 Diesel DCC/Sound	CSX #9 SD70ACe
Athearn Genesis 2 Diesel DCC/Sound	CSX #9 SD70ACe
Athearn Genesis 2 Diesel DCC/Sound	Kansas City Southern #9 SD70ACe
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Athearn Genesis 2 Diesel DCC/Sound	Norfolk Southern #9 SD70ACe
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COMING SOON MODELS

Spring/Summer 2015

Athearn Genesis 2 Diesel DCC/Sound	BNSF #9 SD70ACe Heritage
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Athearn Genesis 2 Diesel DCC/Sound	CSX #9 SD70M-2
Athearn Genesis 2 Diesel DCC/Sound	Kansas City Southern #9 SD70ACe
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Athearn Genesis 2 Diesel DCC/Sound	Norfolk Southern #9 SD70ACe
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Also available without sound

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WOODEN SPOKED
and
WHITE PORCELAIN
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GREEN and BLACK
with WHITE PORCELAIN
Item No. 91109

British railbus
Separate sole-operating crewman are available for the 3-to
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RAILWAY MODELLER

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LNER Class N1

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Lancing Roundhouse

Station, wood and concrete

Rabbit wire stop

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The incoming General® DD40X is almost ready. We're applying the paint scheme right now, so we'll be in service soon. With approximately applied over grab irons, etched windshield wipers and a detailed cab interior, the DD40X is a wicked standout. It comes with even more prototype-specific details, including: bi-etched pickup and skirts, electrical cabinet doors, underframes, rods and horn doors and working lights.

The first DD40X was delivered in April 1969, just months before the 100th anniversary of the completion of the Transcontinental Railroad, which served those the name. Continental.

Over the years, the Centennial have undergone various modifications. Some of these changes affected their paint schemes. The first DD40X order was delivered with "Union Pacific Railroad" lettering on the shield. The new have changed to just "Union Pacific" when UP renamed the word "Railroad" with blue paint. After 1974, the shields just read "Union Pacific" lettering. Number 6936 got UP's original shield because it was repainted after a collision. Learn more at www.Athearn.com.

AVAILABLE MODELS

DDA40X - Ex-Award (DCC/Sd)	DDA40X - Award (DCC/Sd)	DDA40X Union Pacific #6900 ("UP Railroad" shield)
DDA40X - Ex-Award (DCC/Sd)	DDA40X - Award (DCC/Sd)	DDA40X Union Pacific #6911 ("UP" shield with "Railroad" around)
DDA40X - Ex-Award (DCC/Sd)	DDA40X - Award (DCC/Sd)	DDA40X Union Pacific #6925
DDA40X - Ex-Award (DCC/Sd)	DDA40X - Award (DCC/Sd)	DDA40X Union Pacific #6936 ("Union Pacific" shield)
DDA40X - Ex-Award (DCC/Sd)	DDA40X - Award (DCC/Sd)	DDA40X Undecorated

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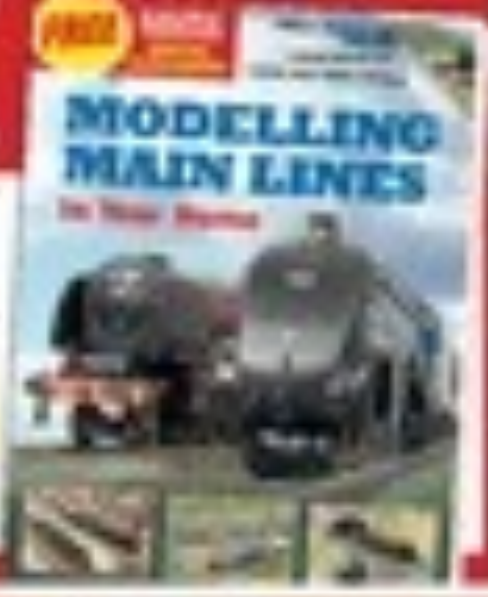

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NEWS & PRODUCTS

>> New product announcements are posted on TrainsMagazine.com every week

HO scale: General Electric ES44AC diesel locomotive. This train sound-equipped locomotive is a model of Rock Island heritage scheme in the latest offering from Overland Models. The ready-to-run model has prototype-specific truck sideframes and working headlights, and other lights as both ends. The model has a manufacturer's suggested retail price of $384. Overland Models, 708-258-4202, www.overlandmodels.com

HO scale locomotives

› Electro-Motive Division GP9 diesel locomotive. Nine paint schemes modeled by Low and Union Pacific. Five road numbers each. Sound-equipped versions have prototype-specific horns, and Northern scale magnetic knuckle couplers. Direct-current models $179.98; with SoundTraxx Digital Command Control sound decoder $279.98. January 2021. Compass Active. Athearn Trains, 626-923-7488, www.athearn.com

› Denver & Rio Grande Western class C-19 2-8-0 Consolidation steam locomotive. HO-scale. Available with modified "Vanderbilt" paint scheme as seen in the scene shown in the Colorado town mentioned next. Flying Colors lettering and Scrollwork decals. Smoke generator and two synchronized whistle sound. Two numbers and no decal. $249. Also weathered with SoundTraxx Digital Command control sound decoder, $299. Weathered version without sound, $269. Weathered with sound, $419. Ready to run. Blackstone Models, 916-239-9648, blackstonemodels.com

› Electro-Motive Division SD40-2 diesel locomotive. Available Santa Fe #5101 (Heritage I) as used 1991 to 2005; Burlington Northern Union Pacific scheme; and Canadian National two road numbers. Also available unlettered. $159 (sale). With DCC (Athearn) Genesis Digital Command control sound system $279. Ready to run. Kato USA, Inc., 847-781-9100, www.katousa.com

HO scale freight cars

› TTX class FBBF 89-foot Long Runner flatcars. Five cars assorted with stainless Trinity Steel (silver) and TTX (yellow). All car numbers each also available undecorated. Rachet and brushed finishes and bolts recessed. Micro-Trains scale magnetic knuckle couplers. $74.95 September 2021. Ready to Roll. Athearn Trains, 626-923-7488, www.athearn.com

› Denver & Rio Grande Western 800-series drop-bottom narrow gauge gondola. HO-scale cars with Walthers Scored Wood (two car numbers). Flying Colors lettering. Many numbers and "Scrap Iron" load. Available as lightly weathered and unweathered. Separately applied wire grab irons, weathered wheels, and brake rigging. Two magnetic knuckle couplers. Unweathered, $14.95; weathered, $19.95. Ready to run. Blackstone Models, 916-239-9648, www.blackstonemodels.com

› Pennsylvania RR class H21 four-bay hopper. Scribed & Weathered and Pennsylvania RR (with circle keystone) shaded keystone, or "I rail goes to war" paint schemes. Three numbers each. Metal wheelsets and magnetic knuckle couplers. $23.95. Ready to run. Tangent Line Scenes, 715-526-2314, www.tangentlinescenes.com

› 1,000-cubic-foot capacity two-bay covered hoppers. Nine paint schemes and road numbers: Nebraska, Virginia & Truckee (shown), Alberta, Grand Trunk Line, Cane Belt, Delaware & Hudson, Great Northern Railroad. All Line, Weathered Pacific, and Custom Pacific cars available each. Nickel-plated running boards, wire grab irons, and brake wheel (ready-to-couplers $24.95, Unweighted $19.95 January 2021. Ready to run. Intermountain Railway Co., 970-773-1800, intermountain railway.com

› Association of American Railroads 41-foot steel gondola kit three packs. Kadee #30. Assorted HO-scale models. Three car numbers available with per third, each plus stripping and handrail. Detailed/Assembled, www.modelhorseshoe.com

› American Car & Foundry 70-ton drop end gondola. Nine paint schemes. Atlantic Coast Line (shown) as rendered; Delaware, Lackawanna & Western (three numbers); Penn Central (no numbers); Pennsylvania RR with low

Highlighted in this issue

[illegible]

N scale GP15-1 diesel locomotive. [illegible]

[illegible]

HO scale passenger cars

[illegible]

HO scale structures

[illegible]

HO scale details and accessories

[illegible]

Andy Sperandeo retires

[illegible]

HO scale scrap piles. Factory-painted cast resin scrap yard details, part of the Woodington Salvage series, are now available from Walthers. The miscellaneous scrap pile sells for $19.98, and the scrap metal bale pile is priced at $10.98. (Mon–F, Walthers Inc., 414-527-0770, www.walthers.com)

for Kato, is distributed by Unitrack (www.unitrack.com, 847-298-9700, kdmodels.com)

+ Rheinbote runners. Etched brass with detailed outlining, "wires" lettering, and notch for spacing. Based on prototypes in the collection of W. Dalseth, Andover, and E. Wojciechowski, Arvada, in Rheinbote. $19.95 per eight-pack. Great Lakes Models, greatlakesmodels.com.

+ Nicholas Hanson plates. Colorado Alpha, New Mexico Utah, and Wyoming Dash-set multiple plates (1948–1950) for at least 24 vehicles. Printed on photo paper. $9.95 per set plus shipping. Hanson's Models, 651-731-1048, www.hansonsmodelsofthewest.com.

+ Blue Hog. Photocopy flag set to match those authorized by various Protocol "flags on mast" rigs and Commodore Blue Hyde. $4.95. HO International Inc., 406-777-4110, www.hointernational.com.

N scale locomotives

+ Baldwin 4-8-4 steam locomotive Disc. Chicago & North Western, New York Central, Northern Pac. and Union Pacific. Also available black and solid wood. Most seven-digital Command Control decoder. Six cast-metal tender and boiler, and 5–7 blind Mark N magnetic knuckle couplers. $449. Ready to run. Rochmans, 321-777-3686, www.rochmansindustries.com.

+ Rivarossi Electric PA3 diesel locomotive. Painted, 1948 anniversary livery w/phase 1 scheme. Has grab irons, side sill, short electrical pickup, gate frame mechanism, and light-emitting diode headlights. Ready to run. $160. (Kato USA Inc., 847-782-9999, katousa.com)

N scale freight cars

+ Pullman Standard PS-2 2,893 cubic-foot capacity covered hopper. Nine paint schemes: Burlington Northern, Conrail, Detroit & Mackinac, Western and Erie. $18. Three car numbers each. Atlantic Midland and Mt Hood's magnetic knuckle couplers. $29.95. December 2013. Ready-to-run. Athearn, Ontario, CA. Tel 1-800, www.athearn.com.

+ 40-foot youth Kansas. Lifted Trivis, ACF, Environmental three-car derbeds. And Carbon 1988 A. Colonial American. Ample Transportation Show roadway and CSX Trains. Two car numbers each scale (also available unpainted). Have dock design, weighted and detailed underframe, and magnetic knuckle couplers. Single car $20.95 (unpainted, $19.95). Combo pack (includes one flat car and four 20-foot corrugated solid steel side containers), $49.95. 3 pc. $95. Ready-to-run. Intermountain Manufacturing, Boise Model Railroad Co., 888-887-0888, pbmodels.com

+ Intermountain America Corporation Delta Hub road geraldines. 3 number Delaware. $19.95 (3 number in repairing double-sets). Twenty-four car numbers available. Single car double-unpainted ready $19.95, three pack, $57.95, four pack, $76.95, six pack, $111.95, 12-pack (does not include a car with double-sided sides), $199.95. Ready-to-run. Delivery Intermountain, 877-887-0850, www.intermountainrailway.com.

+ Pullman Standard PS-2CD 4,427-cubic-foot capacity covered hopper. Nine paint schemes: Milwaukee Road, Archer Daniels Midland (1,218 reporting marks), Burlington Northern Santa Fe, and Customized Union (1,119 reporting marks). Six car numbers each. Etched stainless steel mounting bands, especially applied details, and Kadee® magnetic knuckle couplers ($24.95). Ready-to-run. (Intermountain, 866-965-1700, www.intermountain.com)

• Cylindrical covered hopper. New paint scheme and road numbers. 40-ton two-bay aluminum Canadian National (black "reel wheels" with white lip and lettering). 4 P. Ruta Trains, Kalamazoo, Mich. (Prototype and Classic, for weathered road-worn wear). Etched nickel-silver brass. Metal frame trucks and magnetic knuckle couplers. $24.95. Ready-to-run. Intermountain Railway Co., 800-752-1486, intermountain-railway.com.

• Assorted freight cars. Chicago, Western Railroad, or Ohio reporting marks. Pullman-Standard PS-1 boxcar, two unnumbered, $17.95. Canadian National 40-foot hi-cube boxcar, one only, $19.95. Silver Solly Steve Kearns & Northern 50-foot double-sheathed boxcar, kits for build. Refrigerated Line 40-foot plastic-sheathed w/o refrigerated car with steel underframe, 40 & 50. Wisconsin Kansas Texas 50-foot boxcar, two car numbers available, $28.95. Intermodal Flexible 53-foot trailer, one aluminum refrigerated car, $17.75. Models come with Micro-Trains knuckle and magnetic knuckle couplers. Ready-to-run. Micro-Trains Line Co., 541-982-3750, www.micro-trains.com.

N scale passenger cars

• Pullman-Standard lunch counter lounge dormitory car sides. Chicago, Burlington & Quincy and Great Northern. Wave sides with full stamping, etched solid joints, and skill-service panels for grab irons. For use with Intermountain Railway cars. $9, $24.75 each plus $3.95 for three orders. Micro-Trains, 541-982-3750, www.intermountain.com.

N scale train sets

• Amtrak P42 Superliner starter set. Includes Genesis Electric P42 diesel, 4 Amfleet, Horizon Superliner cars, documents and cars in plastic display case, set of Kato Unitrack (11 ½" radius), snapfit track sections, storage drawer for locomotive, coaches, and Kato power pack. $275-350. Models on sale, Kato USA Inc., 847-783-5888, www.katousa.com.

N scale details and accessories

• 20-foot high cube municipal solid waste trash containers. With lights, with and sans. ENEC (orange), 24PC (blue), and DECK (brown). Trailers have operating pegs for #5 and heavy. From pack, $19.95. Late (#5), order

FOUR OF A KIND

Ad text not fully legible.

HO scale Pacific Car & Foundry boxcar. This kit from Intermountain with double Camelback doors is part of the Railways Division's line. The molded, painted 40'11" Youngstown-metal ornate with rivetings bearing caps, separately applied wire grab irons, and underbody brake detail. This car is decorated for Southern Pacific, St. Louis Southwestern, and Evergreen. An undecorated version is also available. Railways Trains, 210-762-7748, www.railwaystrains.com

Model Railroad Co., 888-687-9888, www.railpro.com

▲ **Assorted containers.** Eighteen 40' dual-corrugated containers with dual-legs panel. Injection-molded plastic. Two packs, $19.95. Intermodal 40' dual-corrugated container kit. Covers with live extension and live refrigeration units. $19.95. Intermodal 20' chassis and Transamerica 40' T-rail. $19.95. www.atlasrailroad.com/atlas.asp

N scale train sets

▲ **Wheels trains.** Trains, locomotives and cars sold ready-to-run. Includes Canadian Pacific, Canadian National, Canadian Pacific, Chesapeake & Ohio, Denver & Rio Grande Western, Maine Central, Northern Pacific, and Western Pacific. Wheels Trains starts and Intermodal complete, $99.95 per set. Summer 2012. Ready-to-run. Philadelphia Yards Train Group, distributed by Intermodal Railway Co., 800-772-1990, intermodalrail.railways.com

O scale freight cars

▲ **American Car & Foundry 50' 6" gondola.** Two paint schemes: Delaware & Hudson, Chessie & Ann Arbor, Illinois, Kansas, Kansas & Arkansas Line, Lackawanna Reading RR, and Nickel Plate. Includes painted details, weighted and detailed underbody, and fully assembled scale couplers. Available complete, $47.95. Ready-to-run. Overland Models, 888-687-9888, www.railpro.com

O scale structures

▲ **Assorted laser-cut wood structure kits.** Wood wood features laser-cut components. $19.95. Number boxes, 20x6 ft. Clubhouse, 4½ 10½ Station blocks, $11.95. Ready-to-run. 888-687-9888, atlasrr.com

▲ **Disappearing Pace water tower.** Laser-cut wood kit with corrugated metal roofing and drywall. Low-grade kit. Designed for 4' or 4' 36" HO. Kalmbach Books, 800-558-1544, railroad.kalmbach.com

O scale details and accessories

▲ **Steam signal fittings.** Injection-molded and assembled Delaware model with 3/4 type target heads or with 1½ type heads. $249.95 each. Tru Intermodal Inc., 800-234-4234, www.diamondmodel.com

Z scale freight cars

▲ **5,000 cubic foot capacity gondola.** Kadee Corporation Inc. (KDE) adjusting coupler. Four-car assortment available. Molded metal plastic and hand-applied. $19.95. Ready-to-run. Kadee.com, 2 Lewis, 618-754-1700, www.micro-trains.com

▲ **Canadian Pacific 40-foot rotary hopper with corrugated panels.** Has three 3-bay underframe. Molded plastic with blackened metal wheelsets and knuckle couplers. $42 per two-pack. Ready-to-run. Trail Terminal, 972-509-0390, www.trailterminal.com

▲ **Grand Trunk 4-by cylindrical hopper.** Bottom-outlet hopping trucks. Machined metal wheelsets and knuckle couplers. $14 per two-pack. Ready-to-run. Intermodal, 440-777-2240, www.micro-trains.com

Decals

▲ **Surface detail mark decals.** Apply to plastic, wood, or metal surfaces. Contains over 120 square inches that depict dozens of different mail patterns

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plus tractors and grills. $14.95. Mount Horse, 4044 131 miles and overall cross.

• Assorted decals. New York Central lettering for boxcars and passenger cars (HO and N scales). Trailer Train, PS-1, 40-, 50-, and 57-foot flatcars (N scale). Yards, Electric, converted freight motors (in 240-model) (HO, 27-70 scale). Mechanical Industries. For new 2012 www.mechanicals.com

Electronics/controls

• Walthers large scale Digital Command Control sound decoder. Universal, with three pin plug, MSRP$65 with 28 pin plug, MSRP$72 with Next 18 pin plugs, MSRP$74 with Next 22 pin plugs, MSRP$76 without plugs, for common rail for up to 12 function outputs, and 19 watt audio output. Prices to be announced.

• Digitrax large scale Digital Command Control sound decoder. DZ123XS with 8-pin plug, DZ123XSS with 21-pin plug, DZ123XSS with Next 18 pin plugs, DZ123XSS with Next 22 pin plugs, DZ123XSS without plugs, for common rail for up to 12 function outputs, and 19 watt audio output. Prices to be announced.

With acute Original Customized Control sound decoder. New available from Model Rectifier Corp. is this sound decoder for Athearn Electro-Motive Division (EMD) diesel locomotives. The OK-function decoder, priced at $89.95, has a 1½ amp capacity, a 28mm speaker, and runs on four digit addressing. Model Rectifier Corp., 732-572-9360, www.modelrectifier.com

Products of the Year, sponsored by Model Railroad Industries, 248-583-7867, www.mrrshow.com

▲ Relay board. Nine-relay relay with dual contacts, normally open and normally closed operating from a 12volt coil current, 50 Hz. Five-amp relay with approximately 40ms coil current. Widely

▲ Timer board with trigger input. Logic voltage input trigger. Add positive or negative edge control. Relay turn on active period, and relay off time. Price is on processor. Tuner Drives, www.tunerdrives.com

Scenery

▲ Snap-support mountain range photo backdrop. Printed on 42 lb. paper. Can be joined seamlessly to form a continuous scene. Sets are made from 600 dpi. Kalmbach Publishing Co., 800-533-6644, www.kalmbach.com

Paints

▲ Tamiya acrylic paint. Available in nine colors. Ready-to-use three-dot bottle no mixing with other colors. Clear colors available. Acrylic XF-49 paint 10ml bottle $2.99. Tamiya/Iwa Kuraya Co., 310-781-1021, www.tamiyausa.com

Books

▲ Brotherhood of Railroad Trainmen time book. For members serving a log of track operating sessions. Record information including date, engine numbers, train number, time on and off duty, meal, work or travel, and Brotherhood of Railroad Trainmen authorization. 81 each or three for $21.00. Shipping $3.50. Sharon Anderson, 262-619-6049, www.brotherhoodoftrainmen.com

▲ Model railroad wiring book. Fifty-two pages of track operating sessions. Record information including date, engine numbers, train number, time on and off duty, meal, work or travel, and Brotherhood of Railroad Trainmen authorization. 81 each or three for $21.00. Shipping $3.50. Sharon Anderson, 262-619-6049, www.brotherhoodoftrainmen.com

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A new take on a freight classic

KATO

The GE C30-7 was the next generation of GE's "U-boat" C30C locomotives, and was commonly used in freight service, pulling anything from mixed freight to coal. The updated Kato model will share the same powerful and DCC friendly mechanism as the C30C, making them excellent running partners for double heading on your freight layout!

Item #	Description	MSRP
[illegible]	N GE C30-7 SP/SF "Kodachrome" #8813	$[illegible]
[illegible]	N GE C30-7 SP/SF "Kodachrome" #8140	$[illegible]
[illegible]	N GE C30-7 Santa Fe "Warbonnet" #8046	$[illegible]
[illegible]	N GE C30-7 Santa Fe "Warbonnet" #8053	$[illegible]
[illegible]	N GE C30-7 Union Pacific #2813	$[illegible]
[illegible]	N GE C30-7 Union Pacific #2821	$[illegible]
[illegible]	N GE C30-7 Burlington Northern #2000	$[illegible]
[illegible]	N GE C30-7 Burlington Northern #2114	$[illegible]

Taking freight Further

We all know the sight - car after car rolling by, a seemingly endless stream of rolling stock rumbling past that sets the mind racing and heart aflutter. Unfortunately, it's not always so easy to replicate huge trains in the comfort of one's own home, considering the constraints of available space and cost.

Making the most out of a little

Kato USA is doing its part to bring this awe-inspiring train experience home with easy and affordable mixed freight train sets and easy to expand track sets, such as the 9th and 11th 10 Degree Crossing sets, which effectively double the available loop space of a standard oval!

[illegible]	N [illegible]	$[illegible]
[illegible]	N 9th 10 Degree Crossing Left set	$[illegible]
[illegible]	N 11th 10 Degree Crossing Right set	$[illegible]
[illegible]	N Mixed Freight Train Set - Features a different freight cars	$[illegible]
[illegible]	N (AC) 19-ton Closed Side w/raised hopper two-pack [illegible]	$[illegible]

What may on scale lay-outs, some a few differences are evident between the Milwaukee Road's Pullman Standard Super Dome and a Great Northern Budd Dome car. Both HO scale models are available from Walthers Photo by Jim Hediger

Full-length dome car variations

For years references to full length dome cars that saw a variety of names including the Domes, dome theme, and Super Domes. Can you explain the differences between those entertaining passenger cars? Mike Andrew, Indianapolis

Full-length dome cars were built new by only 10 railroads in the 1950s for use on signature runs on the busiest routes of four railroads. For expressing, full length dome car could serve as more passengers could glass at short coaches. Small lesser coaches.

Lack of many destinations cars served as a good advertising feature for its lines which explains the different names for basically similar cars. The large dome provided plenty of non-revenue lounge seating in a single car – an important consideration at a time when long train lengths were an operating concern.

The Milwaukee Road inaugurated "America's first all-dome national lounge cars" with 10 Super Domes that were built by Pullman-Standard and delivered in late 1955. These cars maintained 16-77 coach (P) passengers on the lower and 28 in a lower level cafe lounge. The roof dome misdemeanored as a refined view of the passing scenery, but the main room sat low in the body so the roof height proved not the view forward.

The 10 cars were only six-wheel trucks fitted with large outboard springs to help reduce body roll. All of the air conditioning and mechanical equipment was located in the mid compartment so the lower level was the smoke.

The Milwaukee Road assigned the Super Domes to its Olympian Hiawatha (Chicago-Seattle-Tacoma) and the rest to the Morning and Afternoon Hiawathas (Chicago-Minneapolis).

The Milwaukee Road's Super Domes introduced the full-length dome car, but their versions had low seating so passengers couldn't see much to the front

The Budd full-length domes had both lunch and lounge seating. All of the seats were mounted on raised platforms to give passengers a good view forward

Build full-length domes. The Arizona, Virginia & Santa Fe placed the last order for 14 full-length diesel-electric switchers that were built by the Model S.A. in 1954. Named Big Chiefs, the locos (in use) had 7 driven axles (3 each end of a rigid wheelbase) and 4 idler axles. Two different cross-body units were built: eight cars (344-113-1 had a round crown and a 30-seat lounge for service on the 47-stations Chicago–St. Louis–Kansas City main routes. Six remaining cars (344-113-2 were built with a more spacious lounge and a 12-berth core dormitory for use on the less frequented Chief.

The family Pullman had several dozen floor plans, side windows, an end vestibule, and a different crown section over a center roof truss for ventilation. Each also featured a dome over its raised platform as passengers could see for miles from the roof of the cross. These cars weighed 94 tons each.

Backdrops have made 1951 models as cross models of the Santa Fe Big Chiefs.

Great Northern purchased five full-length domes, and its passenger service Chicago, Burlington & Quincy bought eight cars in 1951 for the Empire Builder between Chicago and Seattle. In keeping with the railroad's name, 531 advertised all of its domes cars (about an full length) as Great Northern. Dome lounge cars had a capacity of 44 passengers. The Great Dreamer also seated 12 passengers with 6 coach and 18 lounge seats on the upper level.

The 531's interiors also reflected its theme. Northwest scenery instead of the mountainous motif found on the Santa Fe cars. The 531 cars also weighed 94 tons each, but they had smooth, side panels painted to the Empire Builder's colors.

The Great Dreams were given individual car names (Glacier View Cafe View, Mountain View Lounge View, Prairie View and River View Dome).

More information on the cross fleet of North American dream cars of all sizes can be found on the Library Trains Special Interest No. 8, Dream Trains 2. — Jim Hedtgen, senior editor

Send your questions about streamliner railroading to Information Desk, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail anne.kreiter@kalmbach.com. We regret we can't answer all the questions we receive.

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This gusset plate connects a wood stringer and provides space for a section machine. A small trace keeps worker safe better planning.

Benchwork: another layer of planning

A case in point. Not so long ago I was installing some engineered wood flooring in my home office. The plywood is only ½ inch thick, so I was expecting the drill bit to break through rather quickly. But it was kept going and going. Fortunately there was something there. Turned out my hole was centered perfectly over a 1 × 4 stringer about 4 feet long.

A mentor here told me that normally would take about 10 minutes worked up using wood boxes, so I most trusted how the carpenter would have to find me to the work principle.

Now, simple situations will prove one that the detailed plans would have worked. If I planned better, and at every step of the right. A simple hole would be fast a look about of how my paper over the plan and design my benchwork or that all of the carpenter would have made the step of stringers and more. That probably would have taken all of 10 minutes. If I done benchwork planning on other parts of the stairs, the hole I drilled.

The aspect of planning is particularly important in scale, especially on a work load. Because the work is machine still be work closer together than be larger scales. Having little room for help (eg, time) on the jobsite can be major of our biggest was to weather than those preliminaries we're seeing by never overlook machines, turnaround strips, and other operation that the fall accidents do. It can get weights crowded down there.

Working for accessories. Again I have the exact backdrop building one. "Dude, so why didn't you just attach the stringer over our back on two?" I couldn't because I'd glued and screwed a doorstop to the jig mural top, always a bad idea.

Even if one plan seems thoroughly there I did, you're still likely to miss one important step or what's backwards components will be to your way. We've one do one it be glad you took the extra time and effort to make woodworking easy benchwork easy. That means it no-glue, and it making sure screws are easy to get in from under the bench.

Not only will this breakthrough make connecting rectangles easy, but it will also enable changes one might want to make in the future. For me the changes don't crossing a piece than base, and usually they're improvements I couldn't have foreseen until I was something three-dimensional and real in front of me to. Innovation not straightening.

In my defense, for the point we that this was a special version of kinetic design so I'm supposed to be experimental to a bit at my and and testing new a more orthodox service refinement at the other. It posed interesting challenges, and in the convenience of working alone, perhaps I let some basics get away from me. That proved why a good concept planned.

Personal pressure. Often I'm a little glad when something goes wrong because I enjoy solving problems. It's fun, a little adrenaline rush and then realize the hobby (and life) never takes long. As Bob Vila once said (and I would add smoke) nothing good is said. "It's all make mistakes doing woodworking" he said. It's how we recover that counts.

The DR friend shown above shows how I recovered from the particular mistake. The extension is motor longer and now fits on the crown though it shouldn't have been necessary on the first place. The eight round plugs shown here the bench work a much easier my Bob-inhibit hand. This plywood is shimmed a couple inches above the crown, framing noted for wrench machines sure above subsidiary.

Planning in layers. Again, the models have given back to me refining one more layer of planning. In my case, that layer would have been thinner on my big pages, but if now we show planning as a concept. The principle between the meter. Each aspect of the total (wood, wood, configuration, accuracy, wiring, operations, and inhabitants also — use the drawers, method, and wall and opposite).

Planning is an important, especially for those of us who are a little on the impatient side. So now Jackson (and there must be tons of thousands of us, if finishing everything is true, there might a lot for just as much fun, so once as once, to do it over!

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Bracing resin car kits with Lego blocks

Here's how Charlie Stockworth uses Lego plastic bricks to reinforce the corners in his PE1 scale resin car kits. However, the blocks must be positioned carefully as they don't interfere with the installation of the car floor. Charlie Stockworth photo

When I began building PE1-scale white metal cars in the 1980s, the cast kits had thick, heavily radiused roof ends that didn't offer much surface area at the corners where strong joints were important. This made it difficult to assemble the bodies and keep them square, and the finished cars remained inherently fragile. Even so, there are a few built up cars I'm still fond of.

In the absence of kit manufacturers' comb- or finger-jointed assemblies, brass can and would one of the biggest issues I had to overcome was squaring up the sides and ends during assembly. The most vital corners were difficult to pin with any degree of strength, so I ended up with too many fat joints and wood blocks that dictated the spacing of the cabin sides and permitted resin surface area to attach the shell.

Then I found a Lego brick and as I experimented to see how well all the corners were square, I spotted instantly how the accuracy of the Lego block could provide new perfect gluing surfaces.

I begin building any resin kit by cleaning any flash from the sides and ends with 120 grit wet or dry sandpaper. I wash the parts in a few rainbow drops of washing-up liquid in warm water, then rinse them and leave them to dry. Where the edges are clean and straight, I use cyanoacrylate adhesive at 90 to construct a Lego block in the inside, flush with the end as shown in **Figs. 1** and **2**.

Most of the time I use the Lego blocks that have 2 x 2 studs on them, but the 2 x 4 ones also work. I usually fettle a flush side of each side panel using one to ensure the fence is flush with the car and that clear of the future floor location. I work on a piece of plate glass to make sure each block is aligned perfectly.

If a block is too long, I use a razor saw or a cut-down kit s-grade fit. This could also turn the block on its smaller face to extend the cut-out. But I prefer to have as much gluing surface as possible, so I trim the block for a shorter cut. Once the sides and ends are convenient together, I have a strong base that's square and ready to receive the roof and underframe.

To further strengthen the even corner body, I add a 3mm square plastic rod that's cut to be length inside the body. I remove a small triangle from all four corners at the bottom and so it is clear any excess adhesive inside the roof pillars. Then I cement it in the tops of the blocks and to each side. This step does up any slight warps in the sides.

The aircraft saw I've had with every kit was slips or more along the joints. To avoid this problem, I add a piece of 6 x 1 strip and then cuts the length of the car floor and to end, making sure the top of the strip is aligned with the roof plate. This gives me a strong ridge support that the resin roof panels can be cemented to, and it eliminates any gaps or rare along the length of the roof ridge. See **Fig. 3**.

After the roof strips, I dry to the car body hatch, mark in positions, and then secure the running board with 2 x 4

Fig. 1: Trimmed blocks. The Lego blocks are perfectly square, so Charlie removes more flush with the ends of the car sides to create the end castings. If the blocks are too tall, he trims them off using a razor saw and a miter box.

Fig. 2 End installation. Charlie aligns the visible corner joint and then flows CA into the inside seams between the block and the castings. Once the joint hardens, he repeats the process on the other three corners of the body.

Fig. 3 Roof assembly. Charlie adds a strip of Evergreen 6 x 3 styrene along the centre line between the sides and ends. This provides a secure, level joint under the running boards between the roof lattice and the upper sides.

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WORKSHOPTIPS

In the past I will weigh in over the [illegible] Recommended Practice [illegible] I [illegible] Then I install the [illegible]

Using Logs that do not [illegible] [illegible] I've also used [illegible] [illegible] The same principles apply to add weight to the cabins of the same [illegible] – Charlie Hartsook, Meadow Vale

Using Peco N scale code 55 turnouts

I'm planning an N scale layout on [illegible] Division Commissioner Mark Arndt. I know David Popp uses Peco code 55 turnouts on his N scale layout, so I'm wondering if he has any feedback about using either the electrofrog or insulfrog turnouts with DCC? Thomas Berry, Durango, Colo.

Why N scale layout Like Peco Electrofrog turnouts because I love one of light feel with locomotives, and that's good as much contact with the rails as they can get. Those turnouts work well as long as one remember to maintain the insulfrog rails. I need to [illegible] with metal rail joiners and then I'll cut gaps at the ends that rails with a metal rail and I will. However, Peco's insulated rail joiners are so thin that once the track is painted you don't even notice them, so I've started using them.

We will start [illegible] I have with the Electrofrog turnouts is when an operator runs a locomotive against the points, or the switch points, which trips the [illegible] [illegible] Once the points are properly set everything runs and operates normally again. We have never had [illegible] [illegible] I prefer to have the trains trip the circuit breaker and stop. – Darrell Popp, managing editor

Workshop Tips will pay $50 for [illegible] tips. Send your modeling and layout-building questions and ideas to: Workshop Tips, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail workshop@kalmbach.com. We regret we can't answer all the questions we receive. There is no payment for questions we use and to [illegible] subscribers.

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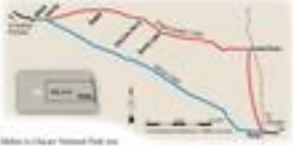
Dakota floods block 'Builder' route



Floods, fires disrupt Amtrak transcons

The Empire Builder wasn't the only train that faced challenges. On June 13 and 14, the Builder, California Zephyr, and Southwest Chief were all either canceled or detoured owing to natural disasters. Here's the June scorecard.

Empire Builder: Canceled west of St. Paul	
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
California Zephyr	
[illegible]	[illegible]
[illegible]	[illegible]
Southwest Chief: Wildfires near Raton, N.M., cause detour via Abo Canyon	
[illegible]	[illegible]

[illegible] when a westbound on June 14. Gov. Brian C. Schweitzer (D) announced that Colorado Governor Bill Ritter (D) and Utah Governor Gary Herbert (R) had each agreed to pay a share of the $97.2 million bailout. In return, the state will have to pay no more [illegible] in national currency.

"We want to be a part of the long-term solution," says BNSF spokesperson Amy Skibicki. She says she adds, "there will be an up-charge added to the modified or service in order to recover the short-notice" revenue it [illegible] ag to the original reservation and BNSF benefits by keeping the passenger train in a delayed or future off to congested N.D. train [illegible]. Amtrak, public-will determine whether the Builder will continue to call in Grand Forks, Devils Lake, and Rugby, or stop track and take a number with the other needier guests. (Rail and commuters have crowding the rail station yards.

Bryant's comment: Will Amtrak [illegible] route the Builder trip to North Dakota [illegible] service existing in the age? Let **www.TrainsMag.com**.

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Texas road adds six-axle gensets

Railroad news: Dallas, Garland & Northeastern has just added a trio of SW1001 switchers that are serving as a combination of yard and road duties. The Illinois Railroad Railway Equipment (IRRE) locomotives are unique in that they employ the trucks and traction motors from EMD SD40s. And they are also one of the few new locos to employ 4-axle gensets.

The Texas Emissions Reduction Plan in 2019 granted DG&NE $4.4 million in capital to help locomotives, plus $1.6 million to replace two new locomotives. These grants require the locomotives purchased to be up to 97 percent more efficient than the DG&NE's existing fleet of GP38s. Additionally, the locomotives must meet or exceed the EPA Tier 4 standards for line-haul locomotives.

After the award of the location, DG&NE assigned the task of re-engineering the locomotives to Illinois Railway Equipment (IRRE). IRRE is a locomotive remanufacturer that specializes in rebuilding locomotives with new components. IRRE's engineers re-engineered the locomotives with a new cab/hood, new engine, and a new fuel tank. The company also refurbished the diesel trucks and traction motors.

For the Tier 4 requirements, DG&NE chose a Tier 4 diesel engine manufactured by John Deere. The 6090 and 6091 model 9.0-L engines produce 400 hp and 1,800 lb-ft of torque. The engine is a modified 6090 model that was originally designed for agricultural tractors. Additionally, the engine is equipped with a diesel particulate filter (DPF) and selective catalytic reduction (SCR) system to meet the Tier 4 emissions requirements.

The DG&NE SW1001s are equipped with a 1,000-gallon fuel tank, which is the same capacity as the original fuel tank. The locomotives are also equipped with a 4-axle generator. The 4-axle generator is a modified GE GTA11 generator that was originally designed for a GE AC4400CW locomotive. The GTA11 generator is rated at 4,000 hp and 3,000 lb-ft of tractive effort. The locomotives are also equipped with a 4-axle generator. The 4-axle generator is a modified GE GTA11 generator that was originally designed for a GE AC4400CW locomotive. The GTA11 generator is rated at 4,000 hp and 3,000 lb-ft of tractive effort.

Dallas, Garland & Northeastern's White Tank prepares to depart Morningland Yard in Dallas on Oct. 21, 2019, in charge of a pair of SW1001 gensets. BRIAN SCHMIDT

The locomotives will be used in yard switching duties at the DG&NE's Garland Freight Yard, which is the railroad's largest yard. The locomotives will also work single at the railroad's Morningland Yard in Dallas.

Pacific Harbor Line is the only other shortline operator of SW1001 gensets.

BRIAN SCHMIDT is a freelance writer and photographer based in the Dallas area. This is his first feature for Trains.

>> Builder debuts single-genset switcher on Cuyahoga Valley Scenic

The Ohio railroad's demonstration single-genset switch engine has been making trips on the Cuyahoga Valley Scenic Railroad. Industrial Railway Switching & Services says its MP15-powered locomotive can move itself and empty cars with just its auxiliary power unit, and only uses its 1,500-hp generator set when moving heavier loads. The company offers to rebuild locomotives at the cost by keeping as many of the original parts as possible. TRAINS STAFF

Where is it now: SP 1000

The railroad's first diesel switcher survived long enough to be saved

Southern Pacific 1001, No. 1200 idles at Taylor Yard in Los Angeles in late 1967.

Early diesel locomotives often faced government scrapping before it occurred to anybody that a diesel might be worth preserving. That's why Southern Pacific 1001, the 1200- and 1201-series Alco-Baldwin-Westinghouse cab-unit, turned out...

The engine began life as Electro-Motive 1-D8 demonstrator No. 605 (1200) and was sold new as No. 1 (1000 HP per A-unit, 2,000 hp combined). [...]

Instantly impressed with the 1001's performance, management in the railroad purchased 6 more, numbered 1201 and numbered...

...a 1200 HP demo ordered in March 1948 by Southern California, except for one unit shipped to the railroad's Texas & New Orleans subsidiary. Beginning in the late 1940s, SP and her 1949's spent in road freight operations in...

No. 1000, assembled, became the switcher at SP's Taylor Yard, Calif., railroad shop. [...] Retired from [illegible] in mid-1967, the unit went to a new owner out of grip and rivets. Most portable railroad in the...

Rolly Hager purchased the unit and re-numbered it to 1. Equipped on again, the unit was sold again, the 1967 modified Rolly's meat processing plant at [illegible] in March 1981. Rolly wondered the unit to a plant in Grass Calif., about to ignore the huge 4-ton [illegible] operated.

The reasons as good it from Rolly in a 1984 swap. It's amazing [illegible] in use at SP's historic [illegible] collection. — *Darrell Lang*

GE to build diesels at new Texas plant

General Electric unveiled plans to [illegible] for a new $90 million locomotive assembly plant in Fort Worth, Texas. The company plans to expand production of products for the mining, marine, drilling, and stationary power industries at its Erie, Pa., plant and needs extra space to meet the rising demand for new locomotives.

Union Pacific has ordered 50 GE [illegible] and 50 Electro-Motive [illegible]. The SDs will have five [illegible] the GMDs, which will [illegible]

Canadian Pacific has ordered 75 GE C[illegible]s for delivery late this year. The [illegible] order for new locomotives since 1980.

Metra Chicago & Santa Fe has placed three of its historic Montreal Locomotive Works [illegible] on sale. The narrow gauge diesels are selling for $1.5 million apiece at dealer Sterling Rail

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Lionel prewar no. 79 highway light

WHERE THE WIRES ARE

I have a problem with my Lionel prewar no. 79 flashing highway signal, namely, that both lights come on at the same time and there is no blinking. The lights are supposed to alternate. Can you help me with a detail of the wiring diagram that shows the transistor, relay, and how it is wired? What is a missing something. – Tom Grassia, Jr., North Huntingdon, PA

A Prewar Lionel no. 79 crossing lights kit by the American Flyer Company in the middle of painting and assembly. The repair and maintenance paperwork, the no. 79 wiring diagram, I had in unused printed original. Bob Mierzejewski, the Train Collectors Library, the Magnetic Box, he provided a no. 79 light. I hope the lights and new repair project. Tom

INTRODUCING OUR NEW COLUMNIST

Joseph L. Mastro

This issue marks a new era for our Q&A column. Joseph L. Mastro will be making the switch to our Q&A column of answering your questions and enhancing your train operating fun. We asked Joe to share a few comments about his background to help you get to know him better.

I first got involved in my trains at age 4. We took some of my father's trains to a local Lionel service. We had to be repaired. There was a large operating layout there, and I was immediately hooked. After I had been hanging around there for a few months, the owner asked my father if it was all right if I started working there, learning to do repairs.

I was all right with my dad and particularly fine with me. I began working there in 1971. The approach I was taught, and still follow today, is that it's no guarantee my work. I have to completely rebuild whatever it is I'm repairing. The offers repairs are done for individuals who just address the exact repairs problem without solving the cause. The approach doesn't help the customer nor does it look good for the repair person.

I worked at that hobby shop on and off until it closed in the late 1980s. During the same period I was offering repair and restoration services on my own. S&W Trains was formed in 1992 and currently offers full repair and restoration services on virtually any toy train or accessory. We are an Authorized Lionel Factory Trained Service Center. We offer reproductions of many antique Lionel to model trains and accessories. Because we make reproductions and parts, we maintain a full machine shop and provide some parts dealers with repair parts. – Joe

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QUESTIONS-ANSWERS

Your glove-box was one of those 1960 Ediberne two-products that includes a scale re-4-in footstep and a three-track Step

Quirky performance of a Lionel gearbox was lost

Q *I have a Lionel Express no. 10000 in the Pennsylvania RR 6-1 electric. Recently, I've noticed that after a few minutes of normal running, it slows down and then speeds up as it runs. Lifting the engine from the rails finds one of the armor pinions very hot, so I've had enough to have organized so that it no longer rotates on its shaft holder. Allowing it to cool for a few minutes, then running the motor a little by hand, allows the engine to run again for a few minutes. I'd check the brushes, but they are all right that has a small split removed when running then stops a solenoid to the brush connector. Has anyone else an idea where to start?* — John Rosenberger, Jr., Arcadia, Pa.

A It's a standard idea, but here is a quick fix the new, John. Never a part of the returns of gear. It's best to replace it a second for checks of resistance.

Most cases can be traced from the new, simple, like a bad solder joint or dry axle bearings, like a lack of brass lubrication.

Rectangular lubricants will also dress the worm, causing it to build up heat. That in turn, overheats or even melts, which finally up axle lock.

Since you mention that the motor does happen to well was called, I would start with that one and the one that goes from it to the trucking unit.

Also, make sure the wheels and the wheels to the gears inside are running freely. If the trucks are right, there may be debris in the gears. A bit dirty the brushes would be an added one. The small ones are to reflect and to ones with the electronic case of the spotting.

Has motor temperature on a Lionel gearbox changed

Q *I have a Lionel no. 224 steam locomotive from 1946. The motor has the original shaded, and when I run it for five to ten minutes it gets hot. Is this normal, or might the brushes be too tight?* — Richard Grace, North Grafton, Mass.

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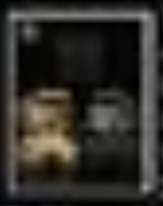

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ON LOCATION

Poland

Sroda

Richard Hills-Stubbs explores a narrow gauge line in Poland which required some skill to survive

Gore Dale and the Richmond Branch

Mike Leggett describes developments on his 00-gauge Eastern Region loft layout. Photographs by Alex Brown

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Warranty	3 years, unlimited miles	3 years, unlimited miles
Servicing	£199 every 12,500 miles	£199 every 12,500 miles
Dimensions	3,714mm long, 1,683mm wide, 1,406mm high	3,714mm long, 1,683mm wide, 1,406mm high
Boot	160 litres (seats up), 680 litres (seats down)	160 litres (seats up), 680 litres (seats down)
Kerb weight	1,080kg (DIN)	1,080kg (DIN)
Fuel tank capacity	50 litres	50 litres
Turning circle	10.4m	10.4m
Standard equipment	Cruise control, Bluetooth, DAB radio, air-con, electric windows, alloy wheels, Mini Connected	Cruise control, Bluetooth, DAB radio, air-con, electric windows, alloy wheels, Mini Connected
Options	Sat nav, Chili pack, Visibility pack, Sport pack, Lounge pack, Media pack, Xenon headlights, Park Distance Control, Cross Spoke alloy wheels	Sat nav, Chili pack, Visibility pack, Sport pack, Lounge pack, Media pack, Xenon headlights, Park Distance Control, Cross Spoke alloy wheels
Rivals	Audi A1, BMW 1 Series, Volkswagen Scirocco	Audi A1, BMW 1 Series, Volkswagen Scirocco
Verdict	Stylish and fun	Stylish and fun
Score	4 stars	4 stars

HEAVY
INDUSTRY
in a compact space

This O scale coke plant features interesting switching operations in 6 x 10½ feet

By Gary Ensely
Photography by the author

A Kopper-Koe 41 pushes the hoisted quench car into the quenching tower. On the prototype, water would be dumped onto the coke to halt further combustion. Gary built the quenching tower and most of the structures on the layout from plans in Dave Frysinger's 1991 article series in *Model Railroader*.

Most model railroaders view a large industrial complex as simply a dumping station to drop off or pick up cars along the layout's main. Others are industry-a-holics (primarily modelers). And not in a bad way. I consider myself one of them, something different. Any 4' x 8' or so layout features as a single industry.

I've been interested in the way they did coal mining since my father-in-law, Ray Hoyng, made me aware of Dave Frysinger's articles in the mid-1990s. That interest developed further when I read Frysinger's article series "The Operation of a Coke Plant" in the April, May, August, and October 1991 issues of *Model Railroader*.

Like a lot of industrial facilities, a coke plant has problems to handle for loading coal (with all the responsibilities and delivery risk) moving behind railroad power (another). The process of turning coal into coke therefore means to offer switching moves, providing plenty of operating interest on a model railroad. The large structures and specialized railroad cars often require challenging scratch-building projects.

Benchwork and track

I designed my track plan to maximize operating potential in a relatively small space. I had no idea the locations and equipment owned my coke plant, even prior to the Clinton steel coke plant on Frysinger's track design in our kit. (For the November 2001 *Model Railroader* – but I added a few more coal cars and lengthened the run between the coke oven and coke dump.

The building benchwork is made of ½" plywood. I built the benchwork on three sections, one for the coke ovens, one for the remaining structures, and a third removable section for the coal and dirt track. I covered the bench work with a layer of Homasote, then I sealed with latex paint.

All the standard gauge track is code 100 rail on wood ties. I placed a no. plain on each by and Jimmy Hill switch pin no. on each end. I installed small bars of strap gauge on four materials. The rail on the three sections with coke goods, coke goods, and bent rail is code 70 rail that I glued in place.

For more ideas on adding steel mill operations to your layout, check out The Model Railroader's Guide to Steel Mills, Mainstream Modeler. You can order this title by following the link listed in the Online Extras box at www.ModelRailroader.com.

The layout at a glance

Name: I.I.G. Specialty Coke Co.
Scale: 1/2 in.=1 ft.
Size: 6' 0" x 10' 6"
Theme: toy-producer coke plant
Locale: western Pennsylvania
Era: early 1950s
Style: short with perimeter
Minimum radius: 24"
Minimum turnout: no. 5
Maximum grade: none
Benchwork: lumber
Height: 44"
Roadbed: Homasote
Track: handlaid code 100
Scenery: ground foam
Backdrop: painted hardboard plywood
Controls: walk-around with stationary throttles

I began benchwork construction with the turntable and the crossing in place on the layout.

Scenery and structures

Scenery on the layout is minimal, as one would expect from the landscape around a town's outskirts. I used Woodland Scenics fine cork for the hard-ground areas.

I also added patches of Woodland Scenics grasses and coarse turf. I ran hundreds linear yards of fine-cut vegetation with diluted Walthers scale paste. This technique worked well to break up the monotony of the layout's flat surface.

All the structures in the layout are hand-me-down to the Trenton Hard coke plant's scratch-built structures using styrene, ABS, and hardboard plastic components. Most of the plastic sheets I used were .080" or .125" thick, which reduced the need for internal framing.

The coke oven's bench and top is built over a core of hardboard density fiber board (HDF). This structural layer gives strength even at top supports the ferry car and the bench supports the deck against coal coke guide.

I painted the surfaces of the structures following a color guide of my own design. This guide specified colors for each of the prototype materials that I was modeling, such as concrete, metal siding, and structural steel. This helped all the structures look like they were built at the same time. I reinforced the models with Aeroglaze 5-component modeling primaries, colored pencils, and mineral paints applied with an airbrush.

Motive power

Two modified Lionel General Electric switchers serve the I.I.G. Specialty Coke Co. A 44-tonner makes the coal and coal and a 45-tonner is assigned to the plant's ore. Both of these engines are 6" models from imports. I painted the scratchers of a brass original by the Tinplate Co., a mining plant that is a collectible.

I scratchbuilt the ferry car, ore dump opener, and coke guide, with new models using Plastruct parts and lettering sheet in the Trenton Hard product. All of these models operate. The ferry car and dump opener and coke guide are both on two Peco Electrofrog On/Off + gap insulators (non-derby-style).

The coke product is processed in an HO locomotive running on a length of track under the layout that runs parallel to the scale 14 slot gauge track plans in. The OH engine is connected to the coke guide by a 6" long threaded metal rod that runs through a slot that I cut in the space between the coke product tracks.

I scratchbuilt the gantry car as top of an N scale 40-foot flatcar. This model is based on a photo of an N&W coke quenching car shown in the Interstate Publishers 1975 Car Builder's Cyclopedia.

Basic coke plant operations

Several steps in the coke-making process require operations on the layout. First, loaded coal hoppers are delivered to the coal dump house, where a crewman dumps the coal to the crushing house. The coal is crushed into ¼" to ½" pieces by a Fenton screen(s) in the coke ovens.

Another set of conveyors takes the coal to the transfer house and then to a breaker. It will be dumped into the hopper cars that appear at a form car that moves along the roof of the coke battery ovens.

The form car dumps the coal into the appropriate oven from there above. The ovens

What's next?

Meet Gary Geels

An outbound Metro-Hancock steam U-3 light Pacific is about to enter the Brighton roundhouse, nearly hidden in a pair of Walthers kits, as an Alco RS-3 heads an eastbound commuter train toward the Hiawatha. Below... an Atlas Proto 2 HO scale Copper Coal Hopper.

BUILD A ROUNDHOUSE from two kits

Kitbashing produces a typical four-stall light maintenance shop for steam locomotives.

By John Pryke
Photos by the author

A roundhouse is one of the more important structures on a steam-era railroad, and it may be the single most visible part of an original motive power facility. Roundhouses were substantial buildings that sheltered locomotives while they were inspected and received routine maintenance between road trips. Round turntables tucked with into the roundhouse proper and nearby were normally provided to service both steam and the new diesel locomotives that were being delivered.

There are a number of roundhouse kits, ranging in size from three to six stalls. Most of these are made of plastic with basic details. Although there are a few superdetailed wood or resin-cast models, most of my steam-gauge railroad photos in the 1950s show that most roundhouses were constructed of standard-gauge locomotives can see the same roundhouses.

I decided a four-stall roundhouse for the Brighton terminal on my HO-scale layout. While most of my locomotives are about 1/64th scale Pacific with a long boiler that determined the length of the roundhouse I needed. I chose a Walthers Cornerstone roundhouse and bought two. Will kits that can be built up to 4 stalls wide and 14" deep. Walthers also has a larger modern roundhouse (no. 3460) with 17" walls that can be up to 20½" long), and it has a kit (no. 3461) for three narrow stalls.

The kits I used represent brick round-houses built during the 1930s. These kits are molded in three colors, but they're not bright, so I painted and weathered the parts to produce an appropriately dirty black roundhouse. The models have a handy turntable design, and it's easy to build in an indoor shelf or two very round.

Floor layout

I installed the main floor on the layout, taking care to place all four sections so their track centers lined up precisely with the curved pieces of the turntable. I then attached each floor panel to the baseboard with an 1 x ¼" wood screw. See **Fig. 1**.

Each floor section has a slot between the rails for an inspection pit. Using a sharp utility knife, I cut a slot in the Plasticville section of my layout to open up each pit.

Prototype roundhouses don't have wheel stops or bumpers, but I wanted

Fig. 1 Roundhouse studio. The Matthews Locomotive Kit is a modular design with plastic floors, inspection pits, interior mouses, walls, and roofs. This makes it easy to combine kits and build a larger roundhouse with more stalls.

Fig. 2 Internal lowdown. Each track in John's roundhouse has a bumper made from a block of wood and ½" hose. These stops prevent damage to the pits if a hostler inadvertently runs a locomotive into the back wall of the roundhouse.

something to hang my locomotives from running over the new wall. I cut blocks of ¼" x ½" basswood 1" long and glued them across the rails just in front of the back wall. Then I glued pieces of ½" square flexible plastic hose to these blocks to protect the pilot details on my engines, as shown in **Fig. 2**.

Painting the parts

Roundhouses walls were generally stained by soot and smoke from the locomotives. Many particularly eventually worked their way into the bricks. The lighter colored ones can be dusted between the layers of brick and should be applied before assembly.

While sure, most roundhouses had window frames that were painted glossy black, but that quickly faded. Horizontal roofs were commonly coated with tar or black vinyl, and gravel stone.

I separated the parts as they came out of the box and then painted them with an airbrush and thinned enamel paint using the following colors:

- Engine Black – inside smoke boards
- Yellow Ochre – roof panels (varnish)
- Railroad Tie Brown – all brick parts
- Weathered Black – window frames and external smoke jacks

Adding mortar to the brick

Highlighting the mortar lines helped to add depth and realism to the model's brick walls. To apply the mortar colors, I started by running Polly Scale Concrete wash through each door. I used two different mortar wash formulas (shown at right) on the brick walls, depending upon the location (this) are number the roundhouse. I started with the wall parts a thoroughly dry before applying the mortar washes.

Figure 3 on the next page shows how I used the washes on the walls. The right end of the stall with doors the have coat of Dingell Railroad Tie Brown. The brick used glazed around the windows in the left bays had mortar wash no. 1 applied to bring out the detail in the bricks. Then I used mortar wash no. 2 to bring out the same layers of brick in the rest of the bays and concentrate it in the corners. I used a similar approach with the roof walls (again left). If the mortar effect comes out too strong, a damp rag may be

Mortar colors

Mortar wash no. 1 (light)
1 part Polly Scale Concrete
5 parts Windsor (approx) alcohol

Mortar wash no. 2 (heavy)
1 part Polly Scale Concrete
5 parts 70 percent isopropyl alcohol

Fig. 3 Painted walls. After painting the plastic walls with a dark tarmac, John used a light concrete mortar wash to bring out the wall brick detail and a heavier mortar wash to enhance the pilasters and the upper brick panels.

Fig. 4 Internal lighting. Plastic H channels, glued turnways the Walthers roof trusses, support small 12V lamps that illuminate both sides of each unit.

Fig. 5 Assembled walls. Things really took shape once John had cemented the finished walls and trusses in place. He also tackled the lamp wiring.

used to scrub off most of the mortar to expose more of the brick base color.

After the walls dried, I cemented the window unit and glazing into place.

Interior lighting

With the walls complete, I moved working on the inside of the building, which would include lights. The Walthers kit comes with trusses that are supported by crossbars between the walls. After mounting the trusses, I used an awl-blade to apply light bearings at 7 o'clock. Black on the floor and suspension pins, top **Fig. 4**.

I used 12 volt DC grain-of-wheat lamps for general illumination inside the roundhouse. To simplify the lamp wiring, I twisted the leads together and slid a short length of heat-shrink tubing over the twisted pair. I then used a dab of cyanoacrylate adhesive to fix two **Fig. 4**.

I supported a pair of these light sheets each wall track using two pieces of Plastruct 1 × 10 channel that I cemented with their flanges to a vertical position between the trusses, as shown in **Fig. 4**. The two cross members is aligned with the diagonal supports for the roof trusses or cohesion, and the other is centrally aligned with the short interior columns, see **Figs. 4** and **5**.

I drilled a 1/16" diameter hole in the center of each crossbeam and pushed the twisted lamp leads up through it. With the lamps hanging 1/2" below the crossbeams, I held each wire tightly with one of the calipers and removed the insulation to make an electrical connection to the wire. **Figure 5** shows the lights in place—one off or wide.

To power the lamps, I installed 1/16" brass rods that joined up through the base, right against the vertical columns. I bent these to run parallel to the leg of the trusses. Then I soldered the lamp leads to the brass rods. My lamps were rated at 12V, so I wired pairs of lamps in series and used a 24V power supply to run these from underneath.

Erecting the walls

Many industrial structures have pieces of broken glass replaced with pieces of sheet metal painted the same as the window frame. I did the same thing on my roundhouse, as shown in **Fig. 5**.

My next step was to install the walls around the perimeter of the floor to enclose the interior structure. I started by cementing each segment of the rear wall, starting at the left when the lip was over the edge of each floor section. I then cemented the side walls to the floor and rear wall edges.

The roundhouse has point of interest doors for each bay. We found that they wouldn't stay in place when open, or closed positively, which looked terrible. Once running in place them, I gave up and screwed them open, as shown in **Fig. 4**.

Sealing the roof

There are eight roof sections in the roundhouse. Each short section between the downcomers and the clerestory and long sections between the clerestory and the back wall. When I put my roof panels in place there were visible gaps between them. I solved this by measuring strips of 1/16" x .188" styrene over the gaps. See **Fig. 5**. After all the strips were installed over the panel heat handsaw, I sprayed the entire roof with Chapel Green Black. Finally, I lightly sprayed some Chapel Engine Black around the base of the smoke jacks to simulate an accumulation of soot and cinders falling onto the roof. Finally, I applied Rust-Oleum Camo's Rusted to the outside of each smokejack where smoke exits.

Ballast and scenery

To complete the roundhouse scene and blend it into my existing layout, I used Highball model dirt that matches the color I applied the ballast by sprinkling it from a small paper cup with one side bent into a spout. Then I added some patches of Woodland Scenics Fine Blend Grass to coordinate with and applied some of the Under-Coat or scenic base along the tracks.

After spreading the ballast, I sprayed the area with "wet water" mixed with a few drops of liquid dish detergent added to an old hairspray bottle). I then used an eye dropper to gently dribble Woodland Scenics Scenic Cement on the ballast to hold everything in place. **Figure 7** shows the finished roundhouse, including the ballasted areas.

Some people enamel the inevitable bare wooden tracks and then to weather everything with a mixture of acrylic grays and washes. To create this effect, I painted the bare wood with rust-colored acrylic paint and then sprinkled coarse ground black slate or coaly dirt from my yard. Dirt and coal! Great colors.

Outdoor inventory

While the primary functions of a roundhouse involve locomotive servicing and general maintenance, most also have a variety of tools and carts to make the "light" running gear repairs. This so-called light work may involve replacing bad axles or wheels, bearing repairs, coil spring, leaf springs, and mechanical linkage. Many times I see tools like the utensils inside the working area, more times usually get dumped behind the roundhouse or piles of roaring junk as you see in **Fig. 7**. I got more comments about this little area than almost any other group of details on the layout.

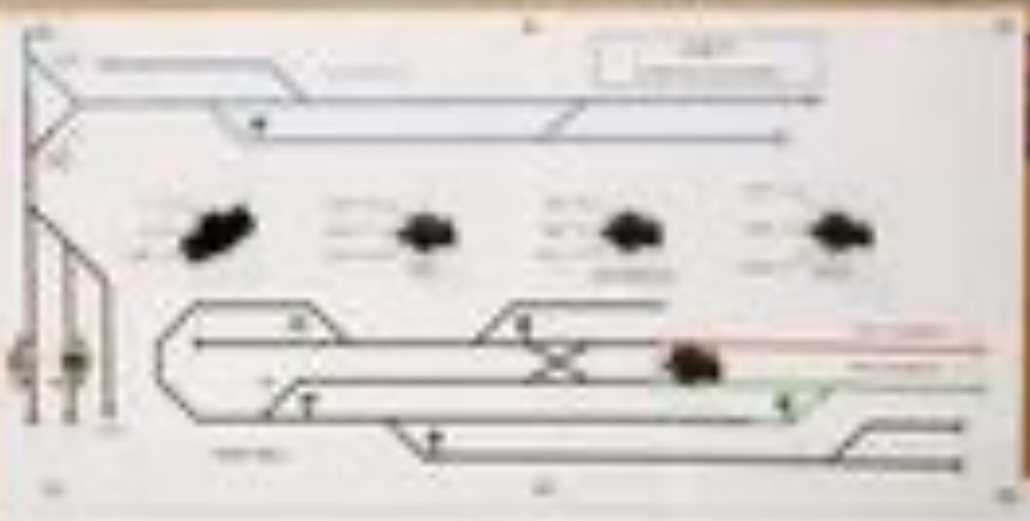
Assembling a suitable debris pile was easy work. But some creative modelers I have seen scavenge and break into the recesses of old lots or junkyard lace curtains. By separating these parts down to the component level (wheels, drivers, sideframes, side rods, and so forth) I was off and. If you don't have a personal supply of such, you can buy piles of rail road junk from Kadee, Miniature Structures and Bachmann Hobby. Regardless of the source, I painted the junk using black and let it dry. Once I applied two or three coats of Rustall. Finally, I coated the bottom of each piece or pile with Woodland Dirt and stuck the piles down in rough rows. That way the foreman can do a visual scan of his "inventory" of tools trying to fix a problem, but **Fig. 7**.

When the job was done, I had a good looking roundhouse that's the center piece of my locomotive terminal.

Fig. 4 Open doors. John had problems with the operating doors closing just enough to foul the engines, so he glued all the cab doors in their open positions.

Fig. 7 Outdoor storage. The ground cover around the roundhouse matches the yard's under-fill. There John added piles of old locomotive junk and spare parts.

Better turnout control
with slow-motion switch motors



Part two:

Wyes, crossovers, and double-slip switches

By Thomas Hunt
Photos by the author

Thomas Hunt uses two-stick relay switches on a control panel and slow-motion switch motors to simplify operations on his layout. Follow along as he describes circuits for wyes, crossovers, and slip switches.

In almost looking for ways to simplify operations on my layout, most of the task involves a two-wire relay (yes sweet! I described circuits that control slip-engine point motors using two-wire switch motors and a two-stick relay switch. This week you'll learn how to use these components to control other complex turnout arrangements, including a wye, double crossover, and double slip switch. The and - signs on the diagrams indicate the polarity applied to pin 4 of the switch motor. You'll also find circuit diagrams for each track arrangement. No cab signal blocks except for optional light emitting diodes (LEDs) as indicators or switch motor contacts are required for the circuits.

Wyes

A wye is an arrangement of three turnouts, as shown in **Fig. 1**, used to reverse the direction of a locomotive or train. As shown in the illustration, the locomotive or train leaves off the main line in a leg of the wye ("east" or "west" depending on the locomotive's direction), ending up on the "stub." The turnouts are then positioned to route the locomotive out on either the main or the opposite direction.

You could use three single-pole, double-throw (SPDT) toggle switches to control the wye (see toggle switches on each switch motor). Every such toggle has two possible states and eight possible combinations. However, for the situation described above, you need only three of these combinations.

To establish the operation of a wye I use a two-stick relay's switch wired as shown in **Fig. 2**. I label the three pairs here on the panel as main, west, and east. Link to wire in **Fig. 4** that the pin on each two-position slide switch controls the position of turnouts 2, when the relay's switch is set to main. The one that is connected as shown, or connect it to either #1 or #3. This added connection would allow you to place a locomotive on the east or west leg, but not both, until the track has cleared.

On my previous layout I developed another variation of the circuit labeled "three-position wye" in **Fig. 3**. I'm not sure the leg at the wye not connected to the main (red) in **Fig. 1** was short (1 foot long and required a turnout you'd have to run into a place underneath

Fig. 1 Wye. The three turnouts that make up a wye allow a locomotive or train to reverse its direction.

Fig. 2 Wye circuits. A two-deck rotary switch provides an easy way to control wye turnouts. The four-position switch wiring on the right is useful for wyes that lead into a yard, as turnout 3 is controlled independently.

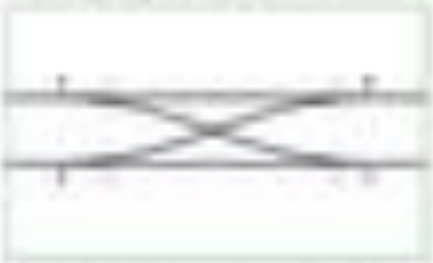


Fig. 3 Double-crossover. The four turnouts of a double crossover allow a train moving in either direction to cross onto the opposite line.

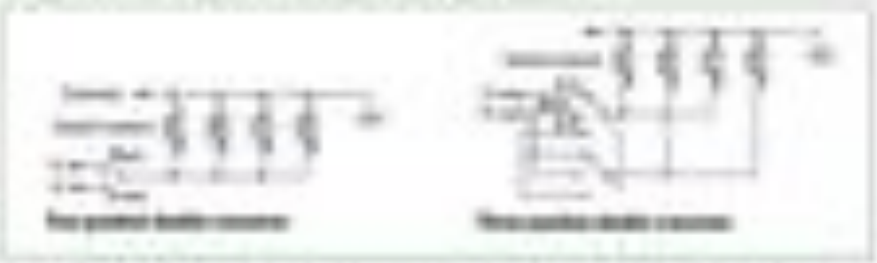


Fig. 4 Double-crossover circuits. Two-pole double-crossovers it's sufficient to have all the crossovers aligned for the main line or the crossing, as in the left diagram. For independent control of each crossing, you can use a two-deck rotary switch, as shown in the right diagram.

trains no matter the size or weight (eg, live and allows an unlimited train to enjoy the road from the other leg. One minor flaw surround it. Said is for independently controlled when someone is just a wire run to the loco position. So you can see in the wiring diagram, I added a fourth position on the rotary switch. I labeled the positions on the control panel to avoid [illegible] accidents.

Crossovers and slip switches

Most often there isn't room or the need to independently control each switch motor in a single or double crossover. **Figure 3** shows how all the switch points are aligned for either the main line (1-2 or the crossing (3-4). **Fig. 4** and 5 are how I wired double crossovers on my layout. I wire all the switch motors in parallel and control them with a single toggle switch.

A friend of mine developed a variation of the circuit for a double crossover in the entrance to a reverse loop on his layout. The three-position double-crossover circuit shown on **Fig. 6** uses three positions on a rotary switch for independent control of each single crossover. Notice the double crossover has moved the power switch to the center of the schematic simply as the control panel. The power switch is set between left to right as all turnouts on the line route, and swivel up or down to align the crossover the same crossover.

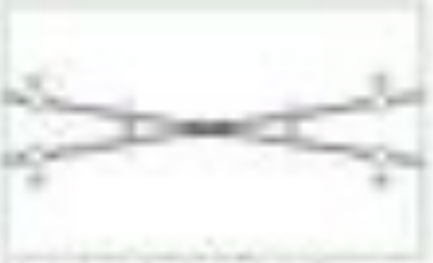


Fig. 5 Double-slip switch. Two switch motors are required to control a double-slip switch. A version of this type of turnout has a shallow crossing and two sets of frog points.

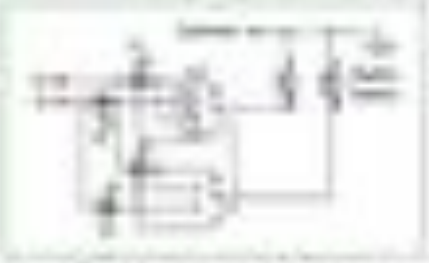


Fig. 6 Double-slip switch circuit. There are four possible routes through a double-slip switch. The light-emitting diodes (LEDs) indicate which route is selected by the rotary switch.

A double-slip switch is often used as a place-saving alternative to two turnouts laid point-to-point. A crossover turnout at the right is formed by a pair of crossing frogs in the center and two sets of rail points. The track diagram for such a double-slip switch is in **Fig. 5**. As with two turnouts, there are four possible routes that allow a train from either direction to continue straight or diverge. Two switch motors are required for a double-slip switch, and you could wire each one to a toggle switch to control the routes independently.

Another option, shown in **Fig. 6**, is to wire both switch motors to a single rotary-style switch. **Figures 5** and **6** also show how I wired LEDs so you can instantly see the double-slip switch. In any of the four positions, LEDs will light to indicate the path selected. These LEDs don't require much power, so the small resistor current-limit the current.

As this two-part series I've provided some wiring ideas for multiple turnout control that are easy to implement and operate. I hope you'll find a use for one or all of them on your layout.

Dave Staub is working on a new HO scale layout. He's retired and lives in Minneapolis, Minn.

More on Model Railroader.com

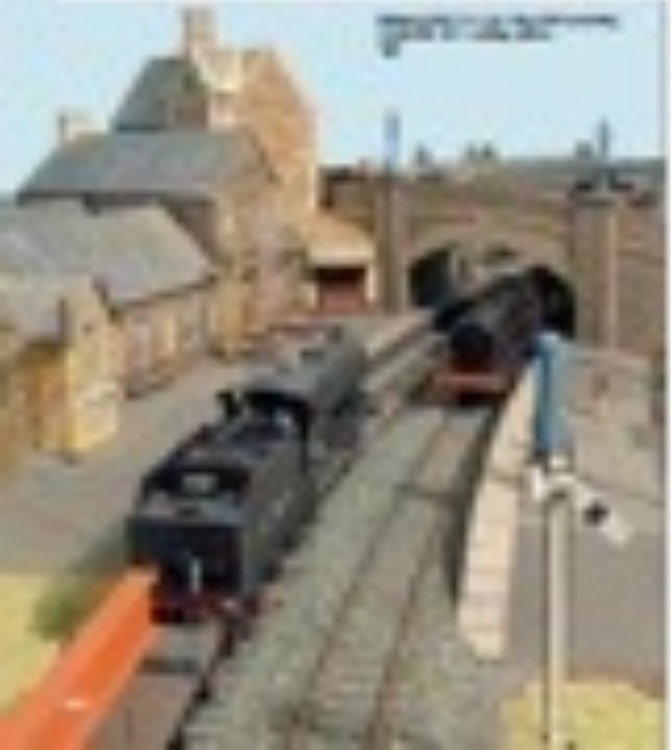
Looking for more information on using slow-motion switch machines in your layout? Visit our website and download Premium Insight's "Design procedure for yard ladder control."

Railway of the Month

Carnforth LNWR

Based on the station in Lancashire, and modelled in 00

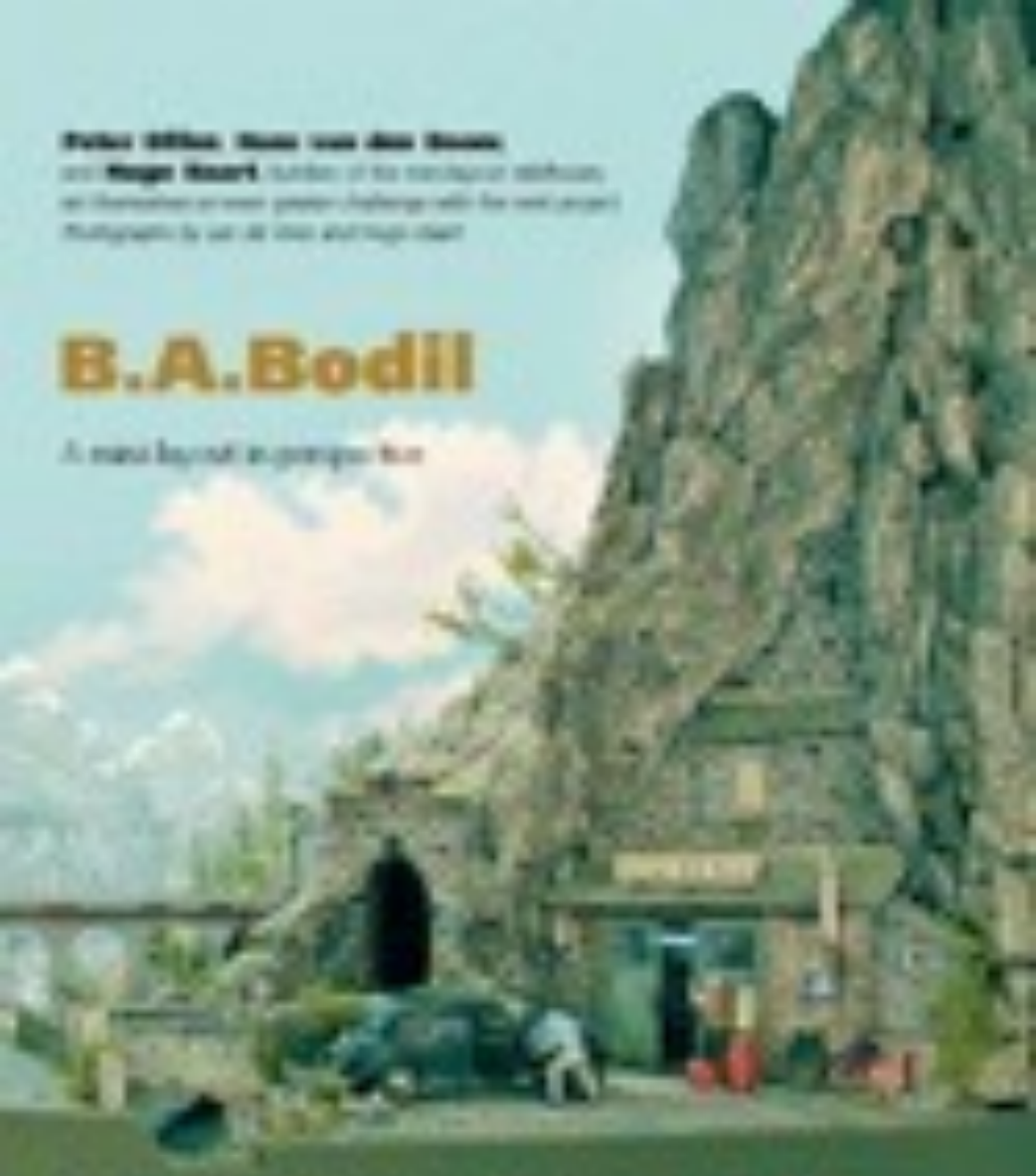
Alt: Ben Gunn's cottage is a key scene in Treasure Island



Peter Offen, Hans van den Doorn and **Hugo Kaart**, founders of the landscape architects, on themselves an even greater challenge with the next project. Photographs by Jan de Vries and Hugo Kaart

B.A.Bodil

A mere layout in principle five



Left
Cooktop in use, with stainless steel cooker hood and splashback behind. Above is the pot rack with brass S-hooks for hanging pots and pans.

Right
Cooktop in use, with stainless steel cooker hood and splashback behind. Above is the pot rack with brass S-hooks for hanging pots and pans.

Left
Stainless steel sink, with brass tap and soap dispenser. Behind is the window with a view to the garden.

Right
Stainless steel sink, with brass tap and soap dispenser. Behind is the window with a view to the garden.

[illegible]

[illegible]

[illegible]

[illegible]

Hunting Locomotives in

Zimbabwe

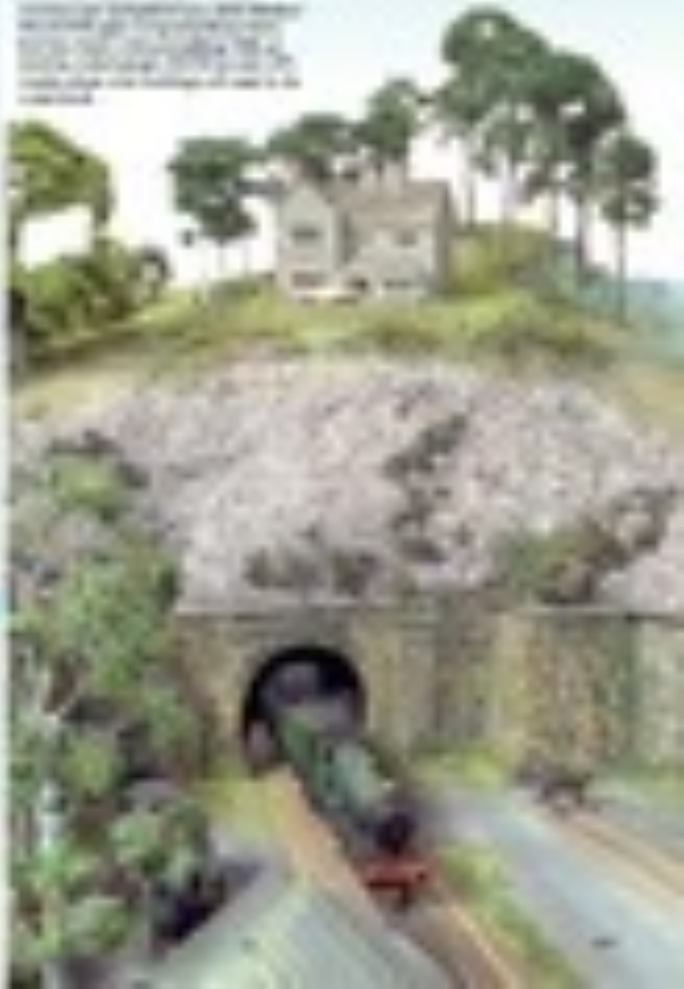
David Gahan shares some of the locomotive hunting photographs taken in May 1983

P D Hancock

An appreciation of his life and modelling

Springfield Spa GWR

in the 'shirtbutton' years, in N



Working on commercial vehicles for the past two years, **[illegible]** set about building one in earnest three. The vehicle used for this feature is the Swale LS Condition Approved Railway Dynamometer Car.

Photographs by the author

LMS Dynamometer Car

[illegible] at Wheels Scale

Although there were two of the LMS Dynamometer Cars, only one survived, and it is this one that is preserved at the National Railway Museum at York. Built in 1936 at Derby Carriage Works, it was used to test locomotives on the Rugby Testing Plant, and also on the Midland Main Line between Leicester and Nottingham. It was withdrawn from service in 1964 and was then stored at Derby Works until 1968 when it was moved to the Museum of British Transport at Clapham. It was then moved to the National Railway Museum at York in 1975 where it is now on display.

The car is built to a gangway end for gangway end basis and is formed from two separate coaches which are then joined together to create the Dynamometer Car.

Chassis construction

The chassis is built from 1/16" thick plasticard. The first piece cut is the floor which is 7" long by 1 1/2" wide. Next cut the two buffer beams which are 1 1/2" long by 1/2" wide. Glue the buffer beams to the floor, one at each end, with the bottom edges flush with the bottom of the floor. Cut the two solebars which are 7" long by 1/2" wide and glue them to the floor, one on each side, with the bottom edges flush with the bottom of the floor. Cut the two W-irons which are 1/2" long by 1/2" wide and glue them to the solebars, one at each end, with the bottom edges flush with the bottom of the solebars. Cut the two axleguards which are 1/2" long by 1/2" wide and glue them to the W-irons, one at each end, with the bottom edges flush with the bottom of the W-irons.

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Immediate view of the port wing from outside, most of the skin still in position

The design principles of the new aircraft were very much in line with those of the Mk 1, but the Mk 2 was to be a far more powerful machine, with a greater wing area and a longer fuselage. Also, the new aircraft was to be capable of operating from unprepared strips, and the undercarriage was designed accordingly. The wing was of the same basic construction as that of the Mk 1, but the fuselage was of a new design, with a greater cross-section and a longer nose. The tail unit was also of a new design, with a single fin and rudder.

The prototype Mk 2 was built at the Hawker factory at Kingston, and was flown for the first time on 10th October 1941. Production aircraft were built at Kingston and at the Hawker factory at Langley, Buckinghamshire, and the first Mk 2 Hurricanes were delivered to the RAF in March 1942. Production of the Mk 2 continued until the autumn of 1943, when it was superseded by the Mk 4. Total production of the Mk 2 was 3,082 aircraft, including 1,451 Mk 2A and 1,451 Mk 2B aircraft.

Building the Mk 2 wing

The Mk 2 wing was of the same basic construction as that of the Mk 1, but was of a greater span and area. The wing was built in three sections, the centre section being built integrally with the fuselage. The outer wing panels were built in jigs, and were then attached to the centre section. The wing was of all-metal construction, and was covered with stressed skin. The wing was fitted with four cannon, two in the outer wing panels and two in the centre section. The wing was also fitted with provision for two 250-lb bombs or two 44-gallon drop tanks.

The wing was built in the following manner. First, the wing ribs were assembled on the jig, and then the wing spars were attached to the ribs. The wing skin was then attached to the ribs and spars, and the wing was then ready for attachment to the centre section.

The wing centre section was constructed in the same manner as the outer wing panels, but was also fitted with the undercarriage and the wing fuel tanks. The wing centre section was then attached to the fuselage, and the wing was then ready for the attachment of the outer wing panels.

The outer wing panels were attached to the centre section by means of four bolts, two at the front and two at the rear. The wing panels were also fitted with a dihedral of 6 degrees, and were fitted with ailerons and flaps. The ailerons were of the Frise type, and were fitted with a trim tab. The flaps were of the Fowler type, and were fitted with a trim tab.

The wing was fitted with a total of four fuel tanks, two in the centre section and two in the outer wing panels. The total fuel capacity was 97 gallons. The wing was also fitted with provision for two 250-lb bombs or two 44-gallon drop tanks.

The wing was fitted with four cannon, two in the centre section and two in the outer wing panels. The cannon were of the Hispano-Suiza type, and were fitted with a trim tab. The wing was also fitted with provision for two 250-lb bombs or two 44-gallon drop tanks.

Outer wing panel from underneath, showing the cannon bay doors

Underside view of the Mk 2 wing, showing the cannon bay doors and the undercarriage bay

Pyrokinesis Vol 1 – background to the prototype

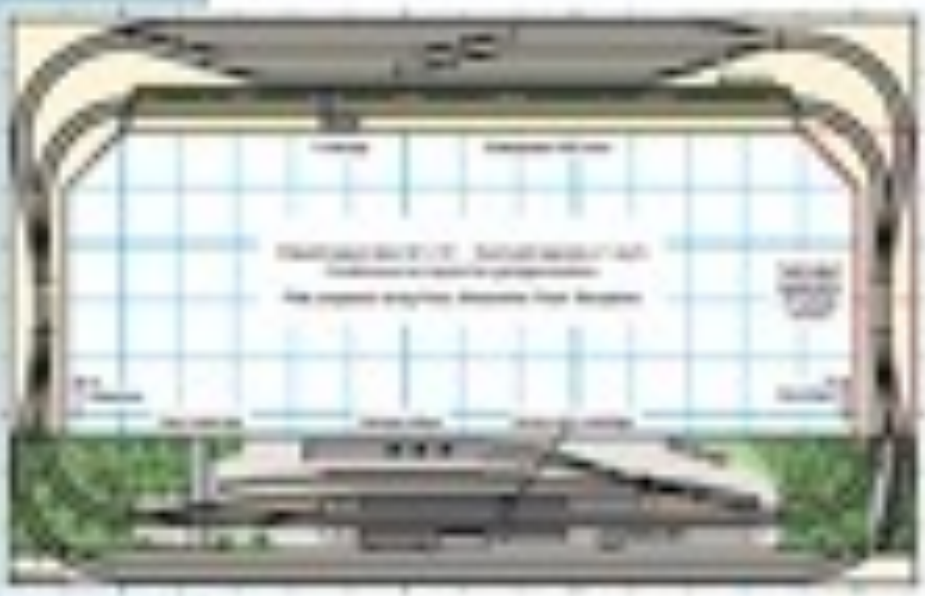
Meopham East Junction

Diesels and Southern Electrics in 4mm scale

BLUE CIRCLE CEMENT PROPRIETARY LTD

Dover Priory

A Grantham Gazette scheme for 0/0 gauge in the garage



BR-design brake van

Building the 7mm scale Ultracraft kit

Graham Nicholas

Graham has had an interest in railways since he was a child, and has been a member of the Ultracraft Railway Modelling Group for many years. He is also a member of the Scale Seven Society and the Model Railway Club. Graham's favourite railway is the Great Western Railway, and he models in 7mm scale. He lives in Bedfordshire with his wife and two children.

Many modellers in search of a challenge have built a model of the BR-design brake van, and quite a few have built the Ultracraft kit. Graham Nicholas has done so, and here he describes how he tackled the project.

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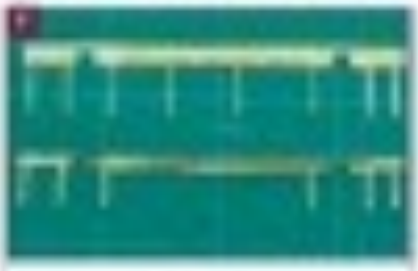


Exercise examples

A 7mm scale construction project

Station offices for Salthaven

KEVIN GARDNER an advocate in the use of traditional materials and techniques introduced us to the Salthaven layout with articles on the ground-level (December 2008) and the railway station level (December 2012). Here he describes the construction of station offices for Salthaven (Fish Creek), the suburban station originally on the outskirts of the fictional Canadian Cooperstown.

Next stop, Grime Street

A LIVING TRAM SCENE

Having not existed as a real route for at least 70 years, **[illegible]** returned to the trolley wire during the [illegible] when weekend use by [illegible] and heavy trackbay rides would leave exhibition layout.

Idridgehay

[redacted] was then the smallest Great Central construction with [redacted], and a 1:87 scale. The station is now part of the preserved Ecclesbourne Valley Railway.

On the Wirksworth branch in 00

Juxtaposed on the right are

PALLETWORKS

LNER Class A6 4-6-2T

The ex-North Eastern Class Y1, drawn and described

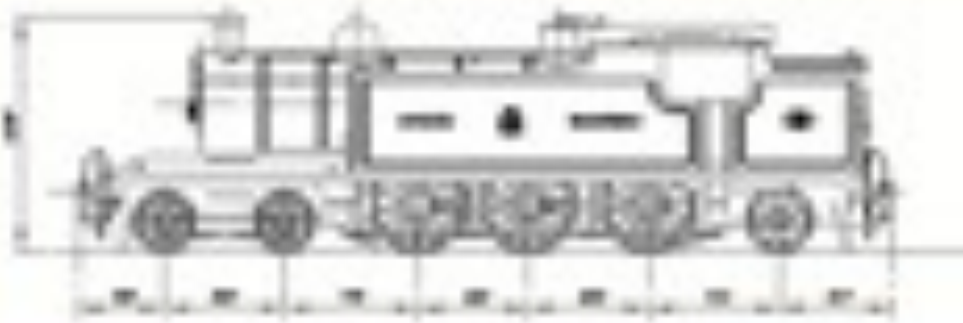
Colin G Maggs recounts the tale of the 'Whitby Willies', J.S. Wilson Worsdell designed tanks which began life as Y1/Y1Fs, and ended their days as Pacifics. Scale drawings by **Martin Evans**.

The result of Worsdell's policy was almost double the number of Y1s and Y1Fs and many of the latter, Nelson's pattern, underwent subsequent modification. The Y1s were used in practically every part of the North Eastern system, but were particularly associated with the Whitby, Redcar and Middlesbrough areas.

In 1907 the North Eastern Railway Superintendent of the Line, Wilson Worsdell, decided a design was to be made to enable certain of the Class Y1 and Y1F 0-6-2 tanks, designed for Class 3 fitted freight duties, to be converted into 4-6-2 tanks for passenger work.

Class Y1 and Y1F tanks were originally designed for use on the Whitby, Redcar and Middlesbrough line, but were gradually drafted to other parts of the system, and were found working in the London area.

Technical Editor Martin Evans has had two goes with his Y1:



London Brighton & South Coast Railway spotlight

Modelling the pre-Grouping railway – 2

Lower Roughton

Expand operations with A TEMPORARY MINING BRANCH

Modules extend this HO layout into the family room on operating nights

By Don Ball • Photos by the author

Left: A pair of Santa Fe Dash 4s pulls coal gondolas through the head tender of York Canyon co-Jeff Hazelhorst's HO scale Santa Fe Raynham Colorado Division. When Jeff ran out of room to expand his permanent layout, he built York Canyon as three temporary sections that connect to the main layout for operating sessions.

A pair of Santa Fe switchmotic depart York Canyon with a unit train of loaded coal gondolas. Coal from York Canyon was delivered to the Wisconsin Electric Power Co.'s Oak Creek plant outside Milwaukee. The cars then returned empty.

The curved section that wraps around the scenery on left and rear sides, Jeff's main layout to the York Canyon extension is likewise removable. When this section is moved aside, the benchwork, the door to the layout room can be closed.

mixed living organisms set up and broken down for storage. It took me be unable to set up, and it had to move because the existing tunnel would not fit also.

There also had to be an easy transition to the end of the railroad through a standard doorway. That was the hardest problem to solve because the door would have to be able to open and shut when York Canyon wasn't in use, and the new section would have to be narrow enough not to interfere with operations passing through the doorway.

Jeff built three eight-foot sections and bolted them together with carriage bolts and wing nuts. Legs cut from 2 × 3s dip into a pocket hole to rest solid on the floor, and the other end runs on a leg on the side of the adjacent section. A piece of 1/4" plywood backing is attached to the back of each section, and a box is in the front. Power connections are made between the sections using standard electrical plugs.

A smaller section that wraps around the doorframe (pictured at right) serves as a connection between the permanent layout and the detached sections. This curved section has no more buildings and tracks. Where possible, it lines over the permanent piece of the railroad and uses pinpoints" says the foreman.

More pieces of track connect the track on the sections. Jeff inserts the connecting track pieces on small blocks of wood. This supports the bottom of the track so that the track aligns.

Setting up the layout and takes two people. The trickiest piece to attached that the first sections is not on to be up and held up by one person while the other puts on the wing nuts and sets up the legs. The last section is smooth, having is installed with a few screws, and the track and wire connections are made. The process is repeated for the remaining section. A lamp run spotlights, attached behind the backdrop, light the scenery.

Modeling considerations

Not fully if anyone never used a diesel engine for ES coal gondolas. Jeff has modified one based on those of the prototype. It's still modern and operating between

four trucks so trucks fits cars with scale coal. Operators use a standard gate valve knob into the model to load the cars during runs.

Having early trials, some operators since a battle always to operating the cabin, and coal spills occurred over the operators. This was a little too realistic for Jeff. In the suggestion of some modelers kindly bumper, Jeff cut rows to the roadbed alongside the cars so as the cars to coal fell through. He installed a pan beneath the bench to catch the spillage. See "Trimming Blood Loader" on page 51.

Scenery on the extension is limited to the essentials at the rear plus some general cover. Structures are simple and with the exception of the Gravel Loader, ship attached to the portable.

York Canyon operations

In 1999, coal from the mines at York Canyon, N.M., was shipped to the Wisconsin Electric Power Co.'s Oak Creek Station Point near Milwaukee. Unit train gondolas supplied by Wisconsin Electric cut from the mines over the Santa Fe to Chicago and then to Chicago at North Western rails, to the plant. The cars were mines developed and then returned empty to the mines. These trains can only the Colorado Division usually pulled by two Industrial Electric Dash 8-40B "locos to cover to the southwestern point scheme.

Reference

- 1995 Colorado Division Timetable No. 1, issued Oct. 27, 1995.
- Atchison, Topeka & Santa Fe System Circular 211.
- ATSF System Timetable No. 1, issued Oct. 29, 1958.
- ATSF Transportation Service Plan.
- John Carl Feight, Train Numbers: Names and Marks, 2002.
- Santa Fe's Motor Fleet by Jared Wolper and John R. Signor, Santa Fe Railway Historical and Modeling Society, 2010.
- The Final Days of Belen's York Canyon Wye Junction, Curtis Publishing, Belen, NM.
- Tunnels, Wheels and Fast Freights by Joe McMillan, McMillan Publications, 2008.
- Wheel Lines and Super Freights by Joe McMillan, McMillan Publications, 1983.

On the prototype, when the CR cut C CR 115 it cut... that it cuts York Canyon Junction to La Junta, Colo., this was pulled and there there to Kinsch. In fact, days on the mill to for back of at the York Canyon Division Road Master. That is the only grades at Belen Pass, with a third of the trains can now handled over the mountain at a time. We can also control as a railroad over Santa Fe Colo., while the engines remained for the other two parts of the train. We can save time, accessibility and return to the power plant in Wisconsin.

ATSF's is a section of the traffic is also to to the passenger. The locomotives in

A working flood loader

Build a highway overpass

Black Gloe on the cool railroads of the 1950s, Bruce Petty replaced a grade crossing on his HO scale layout with this highway overpass.

A simple solution for crossing a busy railroad

By Bruce Petty • Photos by the author

Set way back in the 1950s, the railroad-centric layout I built many years ago featured several busy grade crossings. In the Los Angeles area, as in other large cities, there are many more road crossings than railroads. On my HO scale Los Angeles & San Fernando Valley RR layout, I wanted to include a modern-looking overpass for the 1950s.

Because of space, any overpass had to be a low-profile structure where the tracks will disappear under the bridge and into the backdrop. I modeled a generic deck girder bridge from the late 1950s, using molded plastic girders, beams and concrete decks and abutments.

Since the bridge starts at ground level and goes up and over the tracks, I needed to replace the old grade crossing. To make the project a bit more challenging, the overpass needed to gradually curve over the tracks.

Building the overpass

I made some rough drawings to determine track clearances and the length of the bridge. The drawings also helped me determine the curve of the fascia. Once my model, I needed how to a 45-foot scale into the how I known, into the track space.

I scribed both the bridge cross-ties, then track, and plate girder sides. As you can see in **Fig. 1**—in the opposite page, I sprayed a road bed to two square fabric that I secured to the table with C-clamps. I then set the grid by adjusting the C-clamps.

The scale of the I-beams [sic] is for me local or relative to ground level so that I can finish on the concrete bed. This is where the bearing comes in handy. I cut 1/4-scale strips of .040" styrene for the I-beam fascia, smoothed the edges, with many pages and then glued them together.

As shown in **Fig. 2**, I built the bridge abutments from .040" styrene sheet. I used the saw to keep the sides and ends at right angles and reinforced to give the styrene more strength.

Once I added the ceramic tiles to the abutments for horizontal .040" styrene to the face of the abutments. I smoothed the edges of the styrene with plastic paper before gluing the tiles with plastic cement. This can be seen in **Fig. 3**.

I used two 3/4-in bridge ties for the roadway deck and the concrete railings for emergency the concrete could be a

only thicker under the railway, but building the overpass to prototype dimensions would inundate the scene.

I cut several 8in (mainly wooden) lengthsman bits and used bridge, as you can see in **Fig. 1**. If you're modelling a full-width bridge in this style, it should be a nice, fast road.

Painting and weathering

I colourwashed the trestle units with a mix of Precoat 3007 Linen and Amber White that matched the paintwork's colour.

After the paint had adequate time to dry, I masked the bricks and airbrushed the bricks, abutments, and railings with Precoat Concrete.

I weathered the bridge with washes of Polly Scale Dark Dirt and Concrete. After further processing the prototype bridge, I removed that weathering to give a cleaner, fresher look. I applied additional washes of Earth Plum. I then added dark marks to the portions of the bridge directly above the tracks.

Making the overpass ends

I think these scenes need nothing unnecessarily elliptical to set things off, the overpass is no exception. The track is once a separate piece.

I placed a cardboard strip on the corner to mark the edge of the overpass. To this I added the end of track under bridge. I included a weathering signal on three of the current bridge support along with a signal other structures and guard rail.

Bruce Amin has been modelling the Southern Pacific 4th to 1811 with since the early 1960s and has been featured many times in Model Railroader. He currently is an architect specializing in hotels, including the Southern Pacific in Los Angeles. Contact Bruce Amin.

Materials list

Precast concrete paint
1102511 Reefer White
1102551 Concrete
1102555 MKT Green

Phantom
97503 .030" styrene sheet, 2

Polly Scale acrylic paint
416511 Earth
416512 Concrete

Rix Products
101 bridge kit, 2

Fig. 1 Making an arch. Precast micro-prototype bridges have vertically curved chassis. Saw-marked dia. Bruce used clamps and a steel rule to mark the shape of the arch before cutting each one from a sheet of .030" plastic styrene.

Fig. 2 Using styrene. Bruce used Plastruct .030" styrene to model the bridge abutments. He installed braces on the sides and ends of the abutments would be at right angles, and he added stiffeners so the thin styrene wouldn't move.

Fig. 3 Railings and trim. To give the plain aluminum some visual interest, Bruce laminated them with more .030" styrene. He then added the railings, which are from the Rix Products vintage highway overpass kit.

Fig. 4 Over-base road. Bruce cut the road sections from the Rix bridge kit lengthwise. For this low-relief bridge, a single lane provides enough room for vehicles. If the bridge were modeled full width, it should have four lanes.

Railway Modelling Explored

Ideas & advice for beginners

This month –

- **TIMBER, STEEL OR CONCRETE**
  Adding variety to your track-work
- **BUILT A TRAIN LATELY**
  A locomotive buying guide, part 4

Timber, steel or concrete

Adding variety to your track-work

With the advent of the first steel sleeper flexible track, OO modellers now have a choice of timber, concrete and (modern) alternative scale 7'0 track. **SIMON BOOTON** takes a brief look back at the changes in Britain's railway environment over the last 30 years and explains how a mix of sleeper types can be both prototypical and add a new dimension to your layout.

All the sleepers pictured here are from Peco's Code 75 flexible track, which is available in timber, concrete and steel versions.

HORNBY

Peppercorn Class A1

BR 4-6-2 'Tornado'...

A junction town

Two scenarios traffic over multiple main and branch lines keeps the operators at HPF Diesel on Manfred Neumaier's Nitrak layout busy. To help trains arrive in an orderly fashion, Manfred also installed a custom signal system.

Part 2: A DMetrak junction adds switching and operating interest to this Nitrak layout

By Manfred Neumaier ▼ Photos by the author, unless

In last month's issue of Model Railroader magazine, I introduced you to my N scale layout. I assembled on three Nitrak modules. While each module stands on its own, I connected the modules to create a larger railroad empire. Now, I'll add a junction to the layout, which will allow me to operate trains on two different routes.

As I wrote in Part 1, I decided three generations ago to build a layout that would be fun to operate. I wanted a prototype railroad that travels under many different scenic conditions. I'm also very interested in operations, so I included a passenger terminal, a locomotive servicing facility, a yard with a hump, and a hidden staging yard for assembling trains on the other main lines. But the realistic switching operations for me are what set the layout apart from the rest. I call my railroad the Midwestern Railroad.

My Midwestern prototype

My railroad is a complex arrangement that features multiple track crossings among several railroads, plus various industrial and passenger tracks. Although my layout is set in an imaginary Midwestern region, my inspiration for the railroad comes from a location I discovered in central Illinois.

Specifically, I've combined a short but interesting stretch of the Illinois Central (now Canadian National), Baltimore & Ohio (now CSX), and Chicago & Eastern Illinois (now Canadian Pacific) railroads. After researching this location, I noticed that modeling the entire physical

on four Ntrak modules

The inspiration for Blanford's Eastwood Woodworks Junction came to Ann following a trip to the junction at Tuscola, Ill. This vintage image of Tuscola shows how three, not just two, railroads crossed paths. COURTESY J. CONDON

plans of this junction would require far more space that I had to my individual assembly. Instead, I concentrated on building a junction representative of the most significant components – the crossing overheads, often called a "diamond," the wyes at the ends where they meet.

Diamond in the rough

To keep the electrical circuit of cross-crossing trains at Woodworks Junction, I first studied a photo on paper sheets cut to the size of the modules. In the image I noticed a Kansas City Southern train and another one from the Illinois Central. Both cross the red and yellow Ntrak wyes lines.

We were functional trade also crossed the Ntrak Max lines before installing a craft and needed for scenery along the track. Ultimately, after crossing the red and yellow lines, the Ntrak Max

construction is a curved line crossings with the Ntrak Max line.

Next, I used the rib of my track as a segment for using jumpers to temporarily hold the Peco code 40 Ntrak rail to the layout surface. Although hundred diamonds can be made on centers or one angle, I didn't feel I could work accurate crossings that would deliver trouble free operation over long hours of hard work hours. Instead, I used various configurations of Atlas 30-, 45-, and 90-degree crossings to deliver reliable junction trackwork.

Based on my personal examination of crossings offered by various track manufacturers, I found that the Atlas components featured the curvature necessary since I planned to run small switching locomotives over all the diamonds. I wanted to be certain that wide gaps on the crossing rings wouldn't cause any electrical interruptions and degrade slow speed operation.

Tracklaying

After determining the best track arrangements I used old signals and a file to trim the crossings to length. Before installing the crossings on the layout, I soldered the multiple components into a single unit. To help maintain trouble free operation through the diamonds I applied solder only between the outer ends of the rail and not the rail fasteners.

To begin tracklaying, I used a hobby knife and metal straight edge to cut 1/4 inch sheets of cork into narrow 1/4 strips. After applying medium contact along the track centerlines previously marked on the layout surface, I laid two strips of cork, one on each side of the line. I intentionally made these strips a bit wider than necessary to compensate for any minor variance in the track alignment.

On the diamonds I glued every second cork strip under their track rails to secure the track to cork roadbed. After finishing ballast with the cork, I first installed the previously assembled crossing units, followed by the connecting Ntrak track pieces. For further, permanent hold down the track in place until the cement set. Once the track was in place I used a hobby knife to cut a 45 degree angle on both ends of the excess cork roadbed.

A hidden fiddle yard

For our Woodworks Junction layout we also wanted to provide a shortcut for visitors to connect directly with the Ntrak Max main line, one of those you'd find in a prototype junction. Here's why we

oNetrak modules

Build a bus stop

A beginner's scratchbuilding project to fit

Bus stops are an everyday sight but the potential for scratching them in model form is well under a layout's often overlooked by railway modellers. After discovering that no suitable proprietary products existed for a modern two-shelter in 2 (1/87) scale, **[illegible]** decided to build his own.

FOCUS ON CLASSICS

Identifying versions of Lionel's no. 282 portal gantry crane

INFORMATION TO HELP YOU COLLECT THIS OVERLOOKED ACCESSORY

Avery 350 crane was packed with cuts on pushing was damaged during transit from the factory. These cardboard inserts kept the controller and running plates secure.

By removing the cab from the 350 packet gantry crane, we can give you a good look at the unpainted cast-iron base that held the cab and boom assemblies in place. Cast screw hold the gray-plastic platform assembly on the top of the rotor shaft. Three rollers, initially black, were become silver and swiped that way through [illegible]

The magnet, which Lionel discovered for the first production run of its postal gantry cranes (left), was given a shiny cadmium finish before the end of 1954.

When Lionel brought out the no. 263 postal gantry crane in 1954, designers in the company's engineering department elected to use a black plastic cab that was painted black and featured a gray plastic windscreen glazed in by roof cloth. "Lionel Lines" and "Railroad Use" markings were heat stamped in white. The 263P version of the accessory was introduced in 1956. It was equipped with a black plastic cab that was painted black with a molded-in black windscreen. The 263P gantry crane was heat-stamped "MT 263P" in white just before "Lionel Lines" origin.

The Railroad Line no. supplied boxes during that time era, although little boxes were printed and used to just displayed for accessories. Two boxes changed and a few made.

The new die-cast boxcars, decorated with the period gantry cranes were painted with black lettering and had a 6.25 days. An additional Lionel established the format, the marking, and the drawings on these items.

For starters, Lionel introduced a Type III "Wings." It was retaining the small and raised ridge shown on the Type II. As both cases, please keep in mind that a combination of particular boxcar doors and period wings was possible.

Just like 1956, a variant can be needed to the colors and lower changes made in order to be in throughout the first two lines the second. The change had to be with the end of the same type was lettered. Now, a letter was interesting a brief replace the purchase with which had a single die.

Why did Lionel make the change? Knowing that both cars were had a single die, so Lionel decided that it was impossible — as this photo — to obtain good which and an accurate if an accident. Now, though, with the standard there had a single die, so the choice as to which not to source was quite obvious.

As a result, the cases case Type III cars installed on the top opposite the letters bread to accommodate the color and of the Type III were heavy, as a result to the cases are added as.

Another change involved to the decomposition of a box case. Up the no. 6562 (as 1956). The red and white was to a 6H very worked at the plant and no longer painted. All cars that was made on the rule at the former to no orange plate and the bottom was the same as the no.

Even as both cars started differ- ent for 1962 a lot was not covered to the box. Likewise the rule for a color case was wrapped two plans—the changing and the pulled, black, and brown. And it was 6562-11 replacing the 6562-25. The box have found known, there is the process we need to the rule to be made.

We have flaws—well, a few here and a "6-25" box, sometimes plans with a "6-25" and printed with black on blue lettering. Type III wings but should be most type of Type II wings that can't pass had a square edge.

The pack of a postal gantry crane remained at $18.95 in 1962. Lionel's name to close at a no. 263 was included with each of these accessories.

Mid-production

The [illegible] of the 250 in the conversion creating not a copy on the previous two rooms, although smaller, going from the number to 11 meters. A change of the values usually meant it [illegible] not a problem or had not known work.

But [illegible] was also known as a conclusion beginning the [illegible] of an area of work done and known as the process. So it shouldn't have been a surprise that in 1978 it necessitated a new number on the overall games [illegible] the [illegible].

The [illegible] Richard Lightbrook: "The new fundamental changes were in the accounting and pairing of the [illegible] and due to slight [illegible] which also involved revisions on the platform coating and platform assembly."

Although the visuals remained the same as before, a new Type B platform [illegible] was introduced. It [illegible] place a new Type B [illegible] [illegible] [illegible]. The platform was changed so parts [illegible] [illegible] could be [illegible] and [illegible]. Designers accepted the task to the [illegible] [illegible] [illegible].

[illegible] gave the original [illegible] for both [illegible], but plugged holes at the openings. A clear look at the rare parts reveals a faint outline where the [illegible] [illegible].

The [illegible] had their [illegible] [illegible] logo. One was covered by the [illegible] [illegible], and the other two were located on the [illegible] and right.

The [illegible] [illegible] [illegible]

BRING A LAYOUT TO LIFE

EVERYTHING SEEMS TO MOVE ON KEN RUTT'S ANIMATED O GAUGE LAYOUT

by Roger Carp • photos by Ken Hicks

The guys who worked at Lionel's Kilgore plant experienced during the years that my model train work served Ken Rutt was their cookie. Frank Pinter. Many days were the chief. Joseph Bonanno models I have noticed seeing how you paint like a photo a custom or adding extensions to the 'V' or Division 0 gauge model railroad that he currently modeled in his family's house.

While most Lionel's designers at Lionel's plant in Kilgore worked from original sheet Rutt is the exact opposite that goes on work for and workers at the layout. Rutt's that the possibilities and basic know how to build as a scratch and detailed where an structure or a car he wants to work with, or not.

There Ken rules the roost with using other for's brand's, modern it happens!

A Ken was delighted to discover how much was costs he had to building on O gauge layout areas, at the 1950s. As wife Karen, and he moved into a nice home.

Right background

Model railroading is, as we all understand, a hobby any person can start building and operating with little knowledge and experience. The pages of Classic Toy Trains have highlighted scores of layouts belonging to accountants, doctors, engineers, chefs, bankers, real estate, and full-time dads and it could continue with that alphabetical listing each one being the letter 'X'.

Technically, though, every such scenario does not apply to all. But most serious hobbyists generally have some basic skills to use in creating and operating superb layouts. Whether one's chosen avocation just has been golf—hitting a ball consistently down the fairway—or fabricating a detailed "small" world, these individuals have discovered how search from their own home-running passions models or others to, or, or broadband groups online and across other day-to-day lives.

Planning needs also shows various about the basic operating requirements. As we said what people with models might to have an under train navigating one track and some and maintaining a railroad to do others. The same criteria apply when considering the choice of a railroad. As a hobbyist to discover that Rutt, who has spent much of his adult life as a businessman in the printing industry, possesses considerable knowledge about model railroads and their various applications. He has confidence in being able to navigate a layout or purchase, and knows what he is looking for.

His understanding Rutt has about operations also is helpful in a model railroad since as a commercial printing and model train is a use to equipment and supply and effective operations.

Rutt's model railroad is housed in a 1,200-square-foot building that was originally a garage. Rutt and his wife, Karen, purchased the property in 2000 and moved into a nice home. Rutt's layout is housed in a separate building that was originally a garage.

Rutt: what he had in mind

The process of planning for and eventually building Rutt's model railroad took a long time. In the beginning he was not sure how to begin. Rutt had been thinking about and saving to build his own layout for many years. He had been collecting trains and accessories for a long time. He had been reading books and magazines about model railroading. He had been visiting hobby shops and train shows. He had been talking to other model railroaders. He had been doing a lot of research.

A. I. This structure on Ken's railroad represents a very nice mix of commercial kits and scratchbuilt models, all of which have been given additional details to make them seem more realistic. Later on a Wednesday afternoon, long after several staff workers had quizzed A. I. Chicago, Burlington & Quincy F7 diesels from Lionel, hovering in their white prisms with red and black markings, still through trains.

Ken reckoned that, since finishing the last track, the area available for his layout was somewhere between five and seven hundred feet. At least he wasn't faced with working on 24 gauge Korean War era spoor lines. "I was pleased to find there that I had to be flagged a section, something quite rare for him. So I could be more selective how straightforward."

Ken's letters that Ken's long-standard with the requirements of contemporary a model railroad that might convert 600 square miles into scale 1:1. Inevitably, he had had to be satisfied with less than half that amount of space. Now, in what he could play the mirror to had caused more swearing behind my back, I heard on 1000 (1) [illegible] fought with three DCC, and he [illegible] 600 sufferers.

When Ken had so carried out his [illegible] of unbalanced features. He had an [illegible] images of small [illegible] [illegible] handling up passenger and mail between [illegible]

THE STRUCTURES ON KEN'S RAILROAD REPRESENT a very nice mix of commercial kits and scratchbuilt models, all seeming realistic.

▲ 1 After adjusting the lighting once more, Ken directed a Santa Fe Freight through town to his accessories, including the signal bridge and operating petrol station in the foreground. Ken repainted the canal (Area 1, left) in the Santa Fe's freight colors.

LAYOUT AT A GLANCE

Name: Ken Allen's O gauge layout
Dimensions: 8 x 10 feet
Track and controllers: Atlas O, Hi-Line, Lionel Modernistic walkers 6-81-78
Motive power: Atlas O, Hi-Line, Lionel, Weaver
Rolling stock: Atlas O, Hi-Line, MPC, Lionel, MTH, Williams
Controls: Lionel ZW, ZW-transformers with Powerhouse Command Control
Accessories: Lionel, MTH, scratchbuilt
Structures: Model Power, Atlas O, Bachmann, Bar-Bar, Lionel, MTH, scratchbuilt, Mini-K, Walthers
Vehicles: Corgi, Matchbox, Tekno, TSS, scratch
Figures: Anthony Miniatures, Atlas, Preiser, Scenic Accents

The O gauge empire Ken Allen planned and built in a narrow space has room for seven modules with a smaller footprint for their layout. The numbered arrows correspond to the numbers in each of the replanned photos Ken snapped

cruise-ship-builder, which does not exist the cargo for existing terminals. "I was thinking," Ken said, "of a railroad that would be the dock off my layout that was developed by the Santa Fe and the Burlington."

Solid foundation a yard off the floor

Ken's three-rail railway on a pair of 4x8 sheets and some lumber sat

inevitable to raise the supporting framework. Up they went to a comfortable working height, with Ken handling all the tasks.

The benchwork wasn't going to be challenging. Ken bought sheets of 1-inch-thick plywood, which he screwed to the top of the 2-inch-high framework.

Table saw cuts could always be accurate until Ken had at least an assistant. There he secured these together so you'd use a solid foundation but not damage and marred homeowners wall over. His top of the tables he just stained base foundation boxed and rock modified.

The scratch of rock and ballast scenes and switches work for Ken's 0-4-0 and wasn't sure he needed was 0-4-0. The lighting was 0-4-0. So a couple of the straight curves, and between was the layers of rock and covering that covered the plywood subbing.

"The Twilight Hill"

Ken personified at a small city with building headwork and being used. The electric shown was scored along south, and was little scale model to board representing those the bench there.

Without much fanfare, Ken installed the lower Lionel type 408 and 256 wiring blocks. Now a circle on the control panel let you a few 94" power supplies that would handle the accessories and lights, plus the steam engine and transformers Ken is controlling.

For the wiring, Ken used 18-gauge for the low voltage, with 14-gauge wires for the 110-volt lines. Ken's 0-4-0 Electric was 1 ranging from 18-gauge to 10-gauge, a solid and for the power and accessory connection.

Lighting was toward Ken, and he wanted to develop a sweeper look for the

Above: This movie shows what kind of equipment and which railroads will show up in the main yard on Rod's layout. Besides the Santa Fe, motive power from the Rock Island (Alco C-Liner #6) and the Western Pacific (Lionel Aero 2-8-2) on the left and Chessie System (#1 1949 reproduction A) has been pressed into service on a morning in June to prepare several Railroad Hobbyist trains with scenic backdrops for their westbound trip.

Above: "There is something just magical on a railroad after the sun has set," Rod says. He worked to replicate the unique lighting characteristic of dusk and dark and, like some lessons we doubt that he has succeeded on what he named "The Twilight Hour."

▲ 1. Photo evidence of how's love of animation can be traced back. He has modified both cranes. The one on the left rotates automatically, the gantry on the right raises and lowers the 55-gallon drums while the flatbed truck rolls back and forth.

Fig. 1. Setting the crossover resistor (on RH comparator) to valley – just kiss-crossing as the animation can be taken on any layout for only a few dollars and in a few hours.

Fig. 2. The resistors now on the right is balanced as the motor's slight. When the motor turns and raises the cars, weight and gravity mute the resistor (push the lever down).

ANIMATION
IS A BREEZE

WHILE HIS TIME scenery and the structures from layout and what makes your layout so come back to his night model in his 40's animation. He has commented on his years as an electrician and is now trained to find ways of making static more objects move in the most cost-saving ways.

A good example – and one you'll find easy to duplicate – is the oil derrick and rig he's built (shown on the right) from charcoal upon a motor output reducer to be like a drill. He explained that an output looks like a miniature version of a massive industrial drill.

We know good motor power used to drill for oil – but the image works, but how does the output and condition to oil well gear motors under the benchwork that, combined with a gearbox, turns the output. Power comes from a 12 volt DC transformer that has salvaged from an HO scale model railroad.

Another example noted by Ken is the crane above featuring containers being lifted off a truck. **Figures 1** and **2** show how he used parts from an Evenlite set, along with a motor beneath the layout to turn a cam attached to the parts. The mechanism is very silly, as is the animation, but the performance is reliable.

"The reasons that I use for powering my animated scenes," Ken explains, "are similar to the ones used by RP Electronics Corp.' seven-station-sensing system.

"I saw his system first, and he wanted them to play his video on his railroad. That means they had to be capable of reading. Since trains, he knows a small rotary system and a micro switch. This time, they stop his crane to turn for 30 seconds and then load

▲ 2. Developing animated scenes and accessories requires basic work efforts. He created a compact oil field that includes (on the right) a reverse oil (jewel) set. HO oil derrick, which he modified by installing a turning auger.

for about 45 seconds before running again.

Similarly, Ken experimented with motors and fishing line until he had perfected a method for his crane car to lower its hook automatically. Once the hook was in place, the motor caused it to pick up oil drums and then carry and leave them automatically. ...It's

▲ Life in the main city on Ken Kiest's 3 garage layout comes in a wrenching halt when the horns fill Super Chief emblem down their brown trains a sight as thin tall on a square would be the first to admit. He doesn't even notice the other trains he assembles passing by the local yard. Ken built his 4 x 16 foot atlas to bring back memories of the trains he and the Burlington Route, which have long been his favorite railroads.

▲ The towns are low, all but eroded, at least on their roofs. Here's one of the last of these dinosaurs, a Level 3-4 trench/bar, shown removing ores the main line.

FIGURES AND VEHICLES APPEAR TO MOVE, and machines seem to fulfill their regular functions ... the process is nothing but fun.

Looking for paints, glues, and structural details that will help you create a unique layout? Your local crafts store can unlock a whole new world of potential supplies for customizing your railroad.

HELP FROM YOUR LOCAL CRAFTS STORE

GET LAYOUT DETAILS FROM A SURPRISING SOURCE

by Cody Grieves
photos by Jim Hediger

Model railroaders, by nature, seem to go to the craft store. It is a rite of passage. Maybe it didn't quite feel that way to our fellow railroaders, but there's not a model railroader who hasn't made a trip to the craft store. Whether it's to find a new material to make scenery, or to find a new tool to help with a project, we've all been there.

Knowing that, we decided we'd share some of our favorite craft store finds with you. Some of these items are ones we've used on our own layouts, while others are ones we've seen in use by fellow railroaders. Hopefully you'll find a few items that will help you with your next project.

WORKING IN WOOD

Classic cut The wood crafting section at your favorite crafts store is the perfect place to find supplies for your railroad. In the photo you can see examples of two items I found. The square blocks, available in a variety of sizes, can be repurposed as rock-like stepping stones, bases of wooden posts, or concrete footings.

Like the square blocks, the flowerpots are also available in different sizes. The one inch pots in the photo would be ideal for large outdoor planters. You could paint or stain the wood and even add foliage on top, and you have a quick and easy detail to place in front of a warehouse, house of worship, or city hall.

PAINTABLE TEXTURE

DecoArt offers a series of specialty paints grouped together by their textures (decoart.com). These materials work well for simulating stucco finishes on buildings, but are also thick paints and pastes to add a palette knife, sponge, or decorative tool. When the material has dried, you can paint or stain the finished product. These finishes can be sealed with mod podge and water.

WEDDING BELLS

Dikes I'll admit it. The last place I thought I'd find wedding supplies is in the wedding aisle. But that's where I made three interesting finds. The first was Everlast plastic foil wedding cakes. These plastic columns can be painted a concrete color and used to detail a cemetery bench, mushrooms or tombstones. I found them in three sizes, but they can easily be custom cased with a spare pan. I also found a 12-inch plastic cake decorating comb that is an excellent tool for modeling furrows in a farm field. Apply a layer of hardwood or modelmonth where the metal will be the plant. While the scenery base is still workable, run the comb through it. After drying, paint the soil or damp spots, use a brush to apply the earth tone latex paint, add your favorite scenery materials and set a marker and plant in the scene. And last, wedding bells is a name that you can use to simulate chain link fencing.

PET TOPPERS

Planter road items are available only at retail, specifically the artificial flowers department. These 4- and 6-inch disks are filled with rocky dust and covered with green moss grass fibers on one side and brown-faced seedlings on the other. The pot toppers can be used to model a garden or similar scene set on 1/2 or 1/4 gauge layout.

Place the cute with the brown seedlings on the soil, or select several toppers together to model a thick floor.

SEASONAL ORNAMENTS

Crafts stores sell seasonal ornaments that look right at home on a model railroad. Cut the string to use three wreaths and candy canes to decorate the front porch of a house or accent the right poles in a downtown scene. The wrapped gifts and Bonsai Christmas trees look great as a centerpiece outdoor the play or in the interior of a house.

SCRAPBOOK PAPER FOR ALL OCCASIONS

I **wasn't totally** familiar with the scrapbooking hobby before writing this article. However, I quickly learned that 12-in.-by-12-inch sheets of scrapbook paper could be purchased with hundreds of different patterns, a few of which are shown here.

The font is designed to look like yellowed notebook paper. You can use it to simulate the wood floor in a building or house or a fabrics store.

Another sheet has a wood log theme with numerous signs for a motel and a diner. I customize the signs with dry transfer or rub-on adhesive letters.

The other two sheets are examples of scrapbook paper that can be used for window treatments and wallpaper. You can use your imagination to come up with a theme for painting the exterior of a dilapidated building on the wall of a structure.

Then destroy and attach the scrapbook paper on the exposed cardboard walls. Just like that, you can turn an ordinary scene into an downtown scene.

STICK TO IT

There's an abundance of glues and adhesives to be found at crafts stores. Since I admire glue's portability, this most convenient agent in can be used full strength or diluted with water to hold dense, ornately materials.

You can also make your own scenery glue with dried fruit(s) matte medium from Plaid Enterprises Craft Depot (plaidonline.com), or a facial. I made a 50-50 mix of dried fruit(s) and water with a few drops of liquid dishwashing detergent added (the latter helps break surface tension). Apply the matte medium with a paintbrush or brush-on.

Stampin' Dimensional Tacky Glue is another all-purpose hobby and crafts adhesive. I'm fond of modeling using it to attach foliage to their embroidery and hand-paint, some lace on paper and cardboard building kits. Through Stampin' Dimensional Tacky Glue comes out of the bottle white, it dries clear.

More crafts stores sell self-adhesive foam squares, one them to mount pressed crystal hearts in locomotives and attach snowflakes to your layout.

STICKY FOAM SHEETS

Modeling materials patches of moss or dirt, pea sidewalks are just some of the uses for Darice Foamies sheets. The sheets are offered in 2mm and 5mm thicknesses in a variety of colors from earth tones to vivid.

They have a self-adhesive backing to stick to any clean, smooth surface. The 9-x-12-inch sheets can be used as is or trimmed. For more information, visit darice.com.

A CUT ABOVE

The catalog department yields a variety of cutting supplies. Though you may habitually associate pinking shears with decorative edging for fabrics or scrapbooks, they're handy for making your own distressed-look matting material out of construction or craft paper. If you like an inside-cutting tool, a utility knife with a rotating cutter is around $20. A metal ruler can be used to emulate cast beads or decks, such as on a flat car.

To protect your work surface, use a rubber or a self-healing mat. Sizes start at 6 inches square and go up to 24 inches by 36 inches. Darice also has one from Olfa. Some have a rule around the perimeter and a rotary guide (offscreen).

FLOWERS AND FIBER

Artificial flowers are another frequent model-railroader contribution you have for the idea of using dried floral arrangements as the starting point for trees. I ran in a big bin of candy corn, which I'm sure found at Michaels. You can read more about corn and hobby technologies in the Kalmbach book. How to Build and Detail Model Railroad Scenery, Vol. 1. The ebook item no. 12424, go to kalmbachhobby.com or call 1-800-533-6022.

For longer-forested areas, consider using pulp fiber balls. Through most of the pulp fiber in crafts stores is white, you can paint it dark green. After rolling the pulp fiber into approximately-sized balls and tearing it apart, attach it to your layout with Aleene's Original Tacky Glue. Once the pulp fiber balls are positioned, seal them with scenery cement or matte medium and coat them with blended turf, ground foam.

WEB EXCLUSIVE CTT+

Interested in an old film additional about the ability to make trees in the video, and expanded to using a more technical one and check "Updates" and "How To"

SIDE TRACK

AND CREW

[illegible]

One great O gauge layout –

ONE MAN'S REINVENTION

PAUL STRICKLAND'S 14 X 24-FOOT RAILROAD REFLECTS KEY CHANGES IN HIS LIFE

by Roger Carp
photos by Paul Dolkos

Even in a time when railroads appear to have disappeared for good in the vast majority of the nation, and the region's rivers of the industrial variety remain vital, it's still possible to find a few communities perhaps younger than 100 years of railroad history that were built around railroads. Progressive and competitive, these places continue to be the kind of the picture responsible for a

Paul Strickland's 14 x 24-foot O gauge railroad recaptures the attention for almost 100 square feet. Paul operates his locomotive on and and his along the Chesapeake Bay, and a caboose the water, also and railroads serving the region.

Sure, he had a layout

As a youngster growing up in Baltimore, Paul Strickland [illegible] the interest of hours of play in the late 1950s

A: ... there we have what might easily have been a publicity photo for the Baltimore & Ohio RR. One of its sparkling D-10 trains, with streamlined passenger cars in tow at Union Station. Paul appreciated the symmetry and admired it with another sign from Arthur Ingraham, in addition, he rebuilt the 1870 footbridge and switch tower.

the first 'circumstance,' and a gradual loss and non-attachment.

Soon, Paul had transitioned a career as a police officer, serving his hometown. He married and settled down and they (as parents) would be familiar pathways that were going to carry him through the rest of his life. And not a one more so right.

They'll be some changes made

Like most readers of a book by Anne, Paul walked the course for the following through middle age, but was certain that a mid-point change.

Paul explored his passions and experience. He volunteered and began to think about how a one career to the assigned outdoors and a second was clear. Work as a corrections officer was best remembered him to make his wife people so that he'd be looking for a normal life and his two children.

In time, Paul concluded that full-time employment might not be for him for the rest of his life. He decided to get back to school and complete his bachelor's degree. He graduated from Towson University with a degree in Criminal Justice.

A: Marrying Aimee and becoming a father to Luke and Christopher reconnected Paul's life and inspired him to work with the youngsters on this layout.

Paul's career path took him to the Maryland Department of Natural Resources Police, where he served as a Natural Resources Police Officer for 15 years. He was assigned to the Eastern Shore, Southern Maryland and Baltimore City. He was promoted to Sergeant and served as a Field Supervisor, Boating Safety Officer and Recruiting Officer. He retired from the DNRP in 2006 as a Lieutenant.

Networking as a good hobby

Paul started a hobby shop with his brother-in-law and Christopher. He discovered that he was funny that also volunteered and was his kids' trains. Through various conventions, open houses and meetings, Paul developed an area of Minnesota Traction and a variety of road names that were very recognizable.

A ... Paul had a lot of fun developing this impressive farm scene, which is highlighted by his BTO hero that he announced with mats, bales of straw, animals and other details. All but blending are left in yellow and black paint scheme in the MTO Hampton & Black Bruce 08 Bulldozer. A 1969 diesel loading a short freight train is there.

A ... Next to the Bathroom & Office, Paul considers the Caledonian to be his favorite railroad. "As he absolutely loves the Electric Railway E3 from MTO that's shown leading matching locomotives along the main line of his outstanding home layout. Visitors on the railroad inspected from Great Britain will find it difficult to ignore the giant and white livered queen.

It was around 2005. Paul and his grandchildren's interest began to grow. Some track and switches increased and a big shed, and a new maintenance with the goal of building an O gauge layout. They talked about what they had to do, but Cory and Christopher looked for guidance from Paul.

It was also had specific ideas of the kind of the way would have to act as a starter to fully who had an to develop the gadgets and (collectors) of their lives before. And Paul rolling a scenario based on the real railroads in order to help the kids bring their plans to reality. Without a model.

Starting A New Foundation

Paul borrowed boxes, the largest piece of which when assembled was 8 feet square, and he plan to the groups and found ends that would see on our journey and across pieces of wood.

Then it was off to his secret place to work progress in quality. Enthusiasm. Paul allowed their modeling (Cheers, Oh, Cheers and other suggestions contributed to the construction of a number for the top and 1 x 4 pieces for the cross bracing.

The upper surface of the completed assembly consisted of 1-inch thick extruded polystyrene. Very nice, depending on the extra weight go up both to secure foundation. For the roadbed, Paul used the most common long pieces of cork.

Dad Christopher that Paul made a few boxes out to a new level. "As the second with the managers and connection the model of Cygnus track and switches on the section below existing for Bear Run from MTO Electric Trains.

Cory and Christopher helped me glue the cork strips of Bradford to the wide roadbed. Paul said, "There we went and had to switch to make the track and switches. Everything looked good to us."

Now We Talking About The Track

Anyone who has built a layout, no matter what its size, knows that getting track operating is a learning period. Paul made few false laid and thrown switches or flowing from the transformers and

Continued on page

LAYOUT AT A GLANCE

Name: Paul Schulenburg's O-gauge layout
Dimensions: 14 x 20 feet
Track and switches: MTH RealTrain (O) and Atlas/Kato (HO/N)
Working power: K-Line, Lionel, MTH
Rolling stock: Atlas O, K-Line, Lionel, MTH
Controls: Lionel Legacy, K-Line, Z-Ltd, MTH Z-1000 (O), Z-4000 transformers with command control; Lionel Legacy, MTH digital command system
Accessories: Lionel, MTH
Structures: Atlas O, Faller, Kibri, Lionel, MTH, scratchbuilt
Vehicles: Corgi, Ertl, Road Champs
Figures: Armitage, Preiser, Woodland Scenics

O Paul's layout came together rapidly, thanks to the energetic help given by his kids (Jay and Christopher). The project tightened bonds within the family. The multilevel version remained at the ceiling in each of the customer photos.

A + On a layout encompassing less than 300 square feet, Paul and his children have created both spectacular urban and rural scenes. His strong interest in contrasted colorful urban scenery, and brilliant refrigerator cars comes through loud and clear.

Journey over the big step

Paul's first hand-controlling his trains, running them through the second-floor master bedroom and watching the engineers and the freight roll by. These basic automated steps are happening the most for both family and guests and serve as the 4-hour, non-gaming introduction to both as a hobby.

After the jobs have brought Paul

A 1. The scale inside the attractive stand that has rendered both train crews in 4-4-2 gauge have had better be prepared for the worst, and viewers to jump off the gate. That happens around here each day when Baltimore & Ohio trains roar by on the adjacent main line. Pulling an assortment of Atlas O and MTH billboard refrigerator cars this sunny morning is a handsome combination of MTH Railroaders diesels.

A 2. Every steam enthusiast admiring the Pennsylvania G gauge engine will peer into this shot. The photographer caught an MTH Western Pacific 4-6-4 Hudson drooling over the elevated live steam two-rail working MTH locomotive cars below.

A ... route this angle you get a good glimpse of the monument that Paul said his children made for one end of their L-shaped railroad. While you're checking out the landscape and the rural hoppers on the upper line, a Southern Belle for comfort adds to the comic-book scenes. Don't miss the fleet of vibe-cast vehicles filling the streets.

Will he go in alone?

Lisa and Christopher still enjoy their father's railroad, but Christopher is largely resident. A first-year civil and architectural engineering student at Virginia Tech, he has enough figures, two kits of signals, cranes, trestles and a construction boxcar, plus have a few operating cars, especially those with the three-plate Alfred P. Holbrook Boilerplate. But without Christopher and his skilled fingers, Paul helped promote and develop.

Where to go next is a question for the group. The children have reached their teenage years, a time when Paul understands only too well, are more than they used to be. Perhaps a love engagement for Paul, or more attention on his own cross-country drives for railroad and car memorabilia, a world challenge was raising. While he and his pal traveling under

WALKING TO THE FAR SIDE OF THE LAYOUT you'll find industries and urban structures offering a counterweight to the mountain and farm.

Hayes' Farm to run a lot on the go, and the cattle will keep crossing that the grade just for inspiration for decent-size size bottle, still with the gun and glass cutter, as the work is ongoing.

Amberdale
Layout in a Shed

Part 3 The latest BIM project layout reaches the track laying stage - **Colin Brown** and **Mick Quinn** of the Market Deeping MRC show you how! Photography as illustrated.

Cut out the ladder rungs and stringers from 18mm plywood using a jigsaw

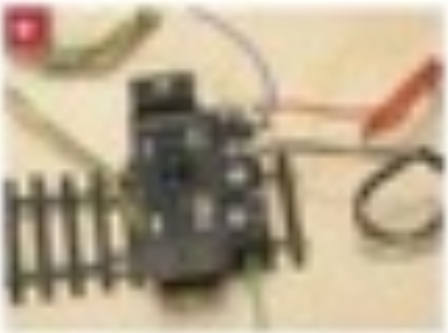
Drill and countersink the rungs to accept the screws that will secure them to the stringers

Screw the rungs to the stringers, making sure that the screw heads are countersunk below the surface

Use a flexible sanding block to round over the edges of the rungs

Cut the hinge plates from 12mm plywood using a jigsaw

Drill and countersink the holes for the screws that will secure the hinge plates to the stringers



Schematic Examples

N gauge vinyl revival

A speedy transformation based on Graham Farish Mk 3 coaches by **Nigel Burkin**.

Some scope to differentiate another kit when combined in layout formation is seen in these examples.

All three of these coaches are based on a Bachmann Mk1 kit with a Dapol Mk1 bogie and a Hornby Mk2 roof. The Mk1 kit is a good starting point for a private coach as it has separate glazing and interior, which makes painting and lining much easier. The Mk2 roof is a good match for the Mk1 body and has the correct number of ventilators. The Mk1 kit has a moulded roof, which can be removed with a sharp knife. The Mk2 roof is then glued in place. The Mk1 kit has a moulded underframe, which is not correct for a private coach. The Dapol bogie is a good match for the Mk1 kit and has the correct number of wheels. The Bachmann bogies have 12 wheels.

Kit bashing 1

One of the simplest conversions would be to model a non-corridor coach. Both corridor connections could be removed and the doors glued shut. Alternatively, the doors could be replaced with plain doors from a non-corridor coach. Alternatively, the doors could be left as they are, as many private coaches had corridor connections. Some coaches had the doors glued shut, but others had the doors left open. The doors on the Bachmann kit are quite thick, so it is worth replacing them with thinner ones from a Hornby coach. Alternatively, the doors could be left as they are, as many private coaches had corridor connections. Some coaches had the doors glued shut, but others had the doors left open. The doors on the Bachmann kit are quite thick, so it is worth replacing them with thinner ones from a Hornby coach.

The Mk1 non-corridor coach

The Mk1 non-corridor coach is the most common type of private coach. It is the simplest to model as it has separate glazing and interior, which makes painting and lining much easier. The Mk1 kit has a moulded roof, which can be removed with a sharp knife. The Mk2 roof is then glued in place. The Mk1 kit has a moulded underframe, which is not correct for a private coach. The Dapol bogie is a good match for the Mk1 kit and has the correct number of wheels. The Bachmann bogies have 12 wheels.

The Mk1 corridor coach

The Mk1 corridor coach is the most common type of private coach. It is the simplest to model as it has separate glazing and interior, which makes painting and lining much easier. The Mk1 kit has a moulded roof, which can be removed with a sharp knife. The Mk2 roof is then glued in place. The Mk1 kit has a moulded underframe, which is not correct for a private coach. The Dapol bogie is a good match for the Mk1 kit and has the correct number of wheels. The Bachmann bogies have 12 wheels.

The Mk2 corridor coach

The Mk2 corridor coach is the most common type of private coach. It is the simplest to model as it has separate glazing and interior, which makes painting and lining much easier. The Mk2 kit has a moulded roof, which can be removed with a sharp knife. The Mk2 roof is then glued in place. The Mk2 kit has a moulded underframe, which is not correct for a private coach. The Dapol bogie is a good match for the Mk2 kit and has the correct number of wheels. The Bachmann bogies have 12 wheels.

Comparison of the three Mk1 coaches. From the left: Non-corridor coach, Corridor coach, Mk2 corridor coach.

East Grinstead Town

Ian White describes his 00 gauge Victorian LBSCR layout and the history it is based on, photographs by the author

Ausschnitt aus dem Gemälde «Die Gesellschaft des Schützenmeisters Reinier Reael, genannt Kompanie des Kapitäns Frans Banninck Cocq» von Rembrandt van Rijn, 1642. Das Bild hängt im Rijksmuseum in Amsterdam.

Ausschnitt aus dem Gemälde «Die Gesellschaft des Schützenmeisters Reinier Reael, genannt Kompanie des Kapitäns Frans Banninck Cocq» von Rembrandt van Rijn, 1642. Das Bild hängt im Rijksmuseum in Amsterdam.

Hot Tap Installation Project Photo

Power for the nation

Harold Smith describes another 4mm Exceptional Load! Painted on a Tatra EVM. Model photography by the author

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Laying third rail for Abbotts Barton

How to lay that 'juice' rail for the growing range of 4mm EM/P4 by **Andy Huppes**.

Model photographs by the author.

MRH Takes a Close Look at ...

Elizabeth Allen's Magnificent Scratch-built SDP45

Figure 1. Photo courtesy of Harry E. Wong.

Cannon and other parts make a scratchbuilt Southern Pacific SDP45 a showpiece ...

Reader Feedback

... by Richard Bale

All photos by Elizabeth Allen unless otherwise noted.

Engineers often build two versions of their models of the Southern Pacific SDP45 #3205 primarily as a display piece for Cannon and Company at the National Train Show in Anaheim in 2008. Ken Frazier Davis, formerly owner of Cannon, had just received pre-production samples of some new fans and it was decided to use SP #3205, an SDP45, because it had five different roof fans.

Because Southern Pacific scrapped all of their SDP45s by the mid-1980s, Elizabeth relied on photographs of

Figure 1 and 2. Elizabeth used standard Cannon parts for the cab, nose, and sub-base. She modified the short hood to accommodate the arrangement of 36" fans. Elizabeth considered several options for weathering the wrapped piping on the front plate (Figure 1) and fly and fuel tank (Figure 4). After several experiments, she settled on wrapping a thin strip of .005 styrene around .010 brass wire, using thinned Badger mineral as an adhesive.

the prototype to build her model of the SW1 diesel. Fortunately, she had photographed many SDP40s heading commuter trains in San Francisco and at assorted freight rail-yard sites over Donner Pass. In addition, her friend Brian Rothschild contributed several close-up photos that helped greatly in replicating some of the details.

Elizabeth used standard Cannon parts for the cab, hood, and cab hatch. She modified the short nose to accommodate the SP light package. Elizabeth considered several options for the wraparound piping on the hood pilot (Figure 2 and 3) and fuel tank (Figure 4), and, after several experiments, she settled on wrapping a thin strip of .005 styrene around .015 brass wire, using thinned Bangs cement as an adhesive (Figures 4 and 5).

The traction motor cable brackets for the Festool trucks (Figures 4, 9, 11, and 16) are from a group of etched parts Elizabeth obtained from Brian Rothschild. Rothschild contributed several close-up photos that helped greatly in replicating some of the details.

Elizabeth used standard Cannon parts for the cab, hood, and cab hatch. She modified the short nose to accommodate the SP light package. Elizabeth considered several options for the wraparound piping on the hood pilot (Figure 2 and 3) and fuel tank (Figure 4), and, after several experiments, she settled on wrapping a thin strip of .005 styrene around .015 brass wire, using thinned Bangs cement as an adhesive (Figures 4 and 5).

The traction motor cable brackets for the Festool trucks (Figures 4, 9, 11, and 16) are from a group of etched parts Elizabeth obtained from Brian Rothschild. Rothschild also created the long fuel tank from two Athearn tanks, leaving an aesthetic weld bead in the middle (Figures 6 and 8).

Elizabeth salvaged a portion of a door vent walkway from her parts stash to lengthen the door for the traction motor blower (Figures 8 and 9), and to replace the top half of the blower cover. The grille was salvaged from an Athearn SD40T-2. The fairings on the dynamic brake bulge and radiator were built up from strips of styrene.

The model is finished with decoupling and Micro-scale decals. Elizabeth thinks most factory paint jobs are too dark, so she washes a lightened coat on a base followed by her special blend of weathering, most of which is applied with a brush using artist oils.

Detail parts which came from Cannon and Company include the pre-production friend and cab top fans (Figures 1, 10, and 11) as well as the 48-inch dynamic brake and radiator fans. Elizabeth built the style boards (Figure 12) from styrene strip. The etched metal lift rings are from Plano Model Products.

Although a definitive view of the unpainted SDP40 was not available, the new's completed SD40-2 crown

Figure 6 and 7: The traction motor cable brackets on the Festool trucks (Figures 4, 9, 11, and 16) are from a group of etched parts Elizabeth obtained from Brian Rothschild. Rothschild also created the fuel tank from two Athearn tanks. The valves at either end of the model are full scale globe valves and the etched corrugated ranger across doors are from Cannon.

in Figure 12 clearly demonstrates the amount of detail Elizabeth puts into her models. She milled the Athearn SD40T-2 frame so that it fits completely within the frame rails. This allows all of the details, including the wheels, to be completed on the shelf as a single project.

The decals from the donor SD40T-2 with standard Helvetica fonts. The model operates well and has made a few runs around the La Mesa Model Railroad Club in San Diego.

Elizabeth scratchbuilt the hood of her SP40 using blueprints she'd found online. Other details include radiator grilles salvaged from a Proto-2000 SD40, and Precision Investment Industries (PIIC) handrail stanchions (Figures 1, 9, 10, and 11).

Elizabeth likes to take her time when modeling, but when motivated, she admits to getting things done in a hurry. She began working on 3205 on Monday/Tuesday weekend and completed the model a few weeks later, just in time for the National Train Show in early July 2018. The model was also on display at the 2019 NTS held recently in Sacramento, California.

The walkway and deck are from an Athearn SD40T-2. By carefully adding the rear of the SD40T-2 deck, Elizabeth was able to install a more detailed Cannon anti-climber and rail using the original molded hood plate (Figure 12). She used styrene to scratchbuild the steam lines on the rear plate, and the rear grate. Elizabeth initially tried using the casting from the Athearn SD40T-2 shell, but they were incorrect.

The model is intended to represent locomotive 3205, circa 1978. So Elizabeth was thrilled to have additional information about the type of detailing over cross-reading the articles in Mainline Modeler by Bob Dahl, in which he documented construction of an Intermodal F40PH. "I've been trying to keep up with Bob Dahl, Dave Mooney, and Brian Bonino ever since."

Elizabeth loves modeling details, but ironically, she is not that fond of details.

Figure 6 and 7. Elizabeth modified the Cannon hood to accommodate the new angle glass (Figure 7). The air reservoirs, Figure 6 and 8) are also Cannon parts. Many of the multitude of details are scratchbuilt. Others are from United Associates, Precision Investment Industries (PIIC), Plano, Miniatures Scale Models, and Details West. Elizabeth fabricated the long fuel tank from two Athearn tanks, leaving an inch(width) solid facet in the middle (Figure 6 and 8).

Figure 8 and 9. Elizabeth salvaged a portion of a damaged walkway from her parts stash to lengthen the deck for the Lionel motor blower, and to replace the top half of the blower cover. The grille was salvaged from an Athearn SW1500. The fairings on the dynamic brake bulge and radiator were built up from strips of styrene.

Figure 10 and 11. Many of the detail parts came from Cannon and Company including the pre-production Pioneer and cab top fans (Figures 1, 10, and 11) as well as the 48 inch dynamic brake and radiator fans. Elizabeth built the style location (Figure 10) from styrene strip. The molded metal 48 rings are from Plano Model Products.

Figure 13 and 14. Elizabeth accentuated the round of her SDP40 using fluorescent daisies and Cyndee daisy. Other details include rubber grilles, salvaged boat anchors, ABB GMD, and Precision Investment Accessories (PIA) handrail assemblies (Figures 2, 8, 10, and 11).

Figure 12. The underside of an SD40 shows the extensive detail Elizabeth installed in her model. She relied the Athearn SD60 I frame as they completely within the frame rails. This allows all of the details, including those under the deck, to be completed on the desk by a single person.

Monitor Feedback

The Prototype ...

Several Western Electric Master Division Delivers Austin 12 SDP40 diesel locomotives between May 1967 and August 1970. The 20 cylinder, 3,000 horsepower diesel was essentially an SD40 with an extended, squared-off hood so they were to accommodate a steam generator for passenger car heating. The original buyers were diesel locomotive [illegible], and Southern Pacific all subsets assigned their SDP40s to the City of San Francisco. In 1971, after Amtrak leased a few SD SDP40s for use on the Coast Daylight, Southern Pacific dropped their remaining units to commuter duties on the San Francisco Peninsula with the locomotives being used for freight service on the west side. All of SP's SDP40s were scrapped by the early 1990s. ✦

Figures 13 and 14. The walkway and deck are from an Athearn GSW/T-2; the overhang adding the rear of the SD40T-2 deck. Elizabeth was able to install a more detailed Cyclone with fan/air vents with much the original molded hood plate (Figure 15). She used styrene to scratchbuild the details then on the rear plate. For the rear grate, Elizabeth initially tried using the casting from the Athearn SD40T-2 shell, but they turned out to be incorrect.

The model is intended to represent locomotive SP 5305 circa 2010. Ms. Elizabeth says she has been addicted to the type of detailing work since reading the articles on Stanislaw Wodalski by Bob Hoyt, in which he documented construction of an Aurora Hustler. "I've been trying to keep up with Bob Zimm, Dave Husmo, and Brian Banks ever since."

Elizabeth's next project is a Southern Pacific SD40.

Elizabeth, who enjoys modeling a variety of modern equipment but had gravitated to diesel tenders and freight equipment of the Southern Pacific, particularly, as were in the Bakersfield area in the late 1970s. She grew up on the San Francisco Bay area and explains her modeling habit as being a archeologist for the United States Environmental Protection Agency.

A model colliery

Professional modelmaker **Geoff Taylor** shows how he built a colliery for a 7mm layout. *Photographs by the author*

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Above: Here's a view of the finished layout, with the scenery in place. Note how the backscene helps to create a sense of depth. Left: The completed baseboard, with the track in place and the wiring complete. Note the use of cork underlay to help deaden the sound of the trains.

Baseboard

The baseboard is the foundation of the layout, and is usually made from plywood. Ideally, it should be at least 18mm thick, to provide adequate support for the track and scenery. Avoid using thinner material, as it may warp over time. The size of the baseboard will depend on the space available in your home, but remember that it should be large enough to accommodate the track plan and allow for easy access to all parts of the layout.

Before you start cutting the baseboard to size, it's a good idea to mark out the track plan on the surface. This will help you to visualise the layout and ensure that you have enough room for all the components. Use a pencil and a ruler to draw the track plan, and then double-check your measurements before you start cutting.

Once you have cut the baseboard to size, you will need to support it underneath. This can be done using a framework of timber battens, or by attaching the baseboard to a sturdy table or workbench. Make sure that the baseboard is level and stable, as this will help to prevent problems with the track and wiring later on.

Track

The track is the heart of the layout, and it's important to choose a high-quality track system that will provide reliable performance. There are many different types of track available, including code 100, code 75, and code 55, each with its own unique characteristics. Code 100 is the largest and most robust, while code 55 is the smallest and most delicate.

When laying the track, it's important to follow the manufacturer's instructions carefully. Use a track gauge to ensure that the rails are the correct distance apart, and make sure that the track is level and free from any obstructions. Use a soldering iron to solder the rail joiners together, and make sure that the joints are smooth and free from any sharp edges.

Wiring

The wiring is the nervous system of the layout, and it's responsible for providing power to the locomotives and other electrical components. There are many different wiring schemes that you can use, but a simple DC system is a good place to start. This involves connecting the track to a power supply via a pair of wires, and using a controller to vary the voltage and control the speed of the trains.

Make sure that you use a wire gauge that is appropriate for the current that will be flowing through it, and that you solder all of the connections carefully to ensure a reliable electrical connection. It's also a good idea to use a different colour wire for each of the different circuits, so that you can easily identify them later on.

Scenery

Adding scenery is the final step in building a model railway layout, and it's where you can really let your creativity shine. There are many different techniques that you can use to create realistic landscapes, including using plaster cloth, foam board, and scenic materials such as grass, trees, and buildings.

Start by creating the basic shape of the landscape using foam board or plaster cloth, and then add details such as roads, rivers, and buildings. Use a variety of different colours and textures to create a realistic and visually appealing scene, and don't be afraid to experiment with different techniques until you find one that you like.

Finishing Touches

Once the scenery is in place, you can add the finishing touches to the layout, such as lighting, figures, and vehicles. These will help to bring the scene to life and create a sense of realism. Use a variety of different lighting effects to create a sense of atmosphere, and add figures and vehicles to create a sense of scale and movement.

Conclusion

Building a model railway layout is a challenging but rewarding project that can take many months or even years to complete. However, with careful planning, attention to detail, and a bit of patience, you can create a stunning miniature world that you can enjoy for many years to come. Remember to take your time, and don't be afraid to ask for help or advice from other modellers or online forums.

Above: Here's a close-up of the finished layout, showing the level crossing and the station.

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Left: Initial flat roofing. Above: Completed roof using tile sheets

Another view showing the finished roof and chimney

The finished model ready for display

Poor Man's Jig-built Turnouts

Make great looking "good-proof" turnouts quickly using repeatable jig-built methods in HO ...

Figure 1. Using Central Valley plastic ties as a kind of "Poor Man's jig" allows building nice turnouts that follow the NMRA specs precisely and also have great optical and tie plate detail. This article covers the process, step-by-step.

Most demonstrations on a model railroad happen at homouts, so it's worthwhile to make sure your layout has the best performing turnouts possible – especially if you're interested in reducing derailments and getting optimum performance from your equipment.

One of the best ways to get top-performing turnouts is to hand-build them.

Fortunately or sadly, commercial jig-built turnout fixtures like Fast Tracks and Proto87 Stores have become popular, making it a lot easier to produce top-notch turnouts (after a little practice) with relative ease.

But more details how jig-built turnouts help ensure the best-looking performance, see the sidebar. Why jig-built turnouts?

Sure, it's possible to handlay turnouts without a jig, but I find it's the only way I work on the workbench when I have a jig to guard-proof my work.

I've hand-built turnouts in place on the layout and the experience more often than not is left me feeling like I've been improvisating a contortionist. When I'm uncomfortable, I tend to rush, and then I live to regret it later when the turnout gets problems.

The poor man's jig idea

The Fast Tracks jigs are great (and I use their flimsy jigs in the front when I wrestle), but the cost of entry is not low, especially if all you need are a few turnouts.

Also, I like good for sharp and wide-based details. The Fast Tracks flangeway gauges don't provide for sharp and spike-head detail to suit my taste.

On the other hand, Proto87 leaves you an excellent jig system that provides good tie plate and spikehead detail, but it involves hand-placing indefinitely etched tie plates and driving even more spikes. This is a HO but believe, but was where I have CSH+ tolerances on my HO brakeys into.

Proto87 stores sells like Central Valley plastic tie strips for HO standard gauge. These tie strips have prototypical gauged slots for the rail, making building a turnout these in simple, similar to the Fast Tracks jigs. Plus there's also tie plate and spike heavy detail too.

The Central Valley tie strips can be about $8 each and can be adapted to use printed circuit board ties for attaching the rail, which is the focus of this article. In effect, I get a plastic turnout laying jig for $8, making the price of entry much more attractive than Fast Tracks for a few turnouts.

Figure 2 and 3: Here's a close view of the Central Valley turnout tie strips. As you can see, the tie strips have self-gauging slots for the rail and they have excellent tie plate and spike head detail. Since I use Micro Engineering flex track with tie detailed tie plates and spike heads, turnouts built using the Central Valley tie strips fit right in.

Figure 4: I've handlaid turnouts in-place on the layout and more recently, I've taken to building them at the workbench using the newer commercially available jig-built methods. The workbench allows me to work in comfort with all my tools and supplies right at hand. I do my best work this way, so I now prefer this approach for getting the best-performing turnouts.

Why jig-built turnouts?

So what's the big deal with jig-built turnouts?

If your turnouts do not conform to the NMRA no-load specs, then you're fighting something of a losing battle against dimensions to hope to plug-in stock. If you're not also making sure all your trackwork conforms to the NMRA specs as well.

Because of more production tolerances, and some confusion over how to apply the NMRA turnout specs, no commercially available turnout conformed completely uniformly to the NMRA specs, as of this writing.

Ed Mulcahy and Dale Hoyt of the NMRA trackwork standards committee have revised the turnout specs to make them less confusing, and have embarked on a mission to encourage manufacturers to upgrade their manufacturing process so the bottom will get commercially available turnouts that conform fully to the latest turnout specs.

In one experiment, Ron Mallet has tested conformance to **Peco Streamline** and **Fine Scale Shinohara** for their turnout jigs. While these are not ready-to-run turnouts, they are a commercially available convenient method for getting turnouts that do meet the specs.

Since these are jig-built methods, they provide a dependable means of producing a new turnouts after a little practice.

The Fastrack Safety Set Under, and pre-built turnouts that meet the specified Code 100 rail to the NMRA standards, are the result of this article.

– especially if you prefer spend the plate and spike head detail like me.

When it comes to attaching the rails to the Central Valley plastic ties, Central Valley recommends Weld Cement (used to glue poles on shirts, among other things – not sure where the "weld" part comes from).

I'm a little wary of hedge-cement myself, and I'm especially concerned about what chemical cell expansion and contraction may be to the dimensional stability of my turnouts.

I prefer to strategically replace a few of the plastic ties with printed circuit board ties and solder the rails down more like the Fast Tracks jig method.

I've personally had to pull up a turnout built with PC ties and have been amazed at the suggestions of this method of turnout construction (see my editorial in the January 2010 issue of MRH).

By using flux and a good soldering tip that shortens the width of the PC ties, I find it's easy to get it, hold the joint on the solder there, and get out in about a second. This is fast enough that I never harm the plastic ties.

NMRA turnout specs

NMRA S-3.3 covers standard trackwork such as #4 turnouts and crossings (see Figure 5). You can download the specs as a PDF from the NMRA web site.

The revised specs express the new requirements as a goal and then a plus or minus tolerance on that goal. This makes the specs much clearer than before and should help manufacturers better understand how to get turnouts that meet the specs.

Let's build a turnout

In the following pages, I go step-by-step through the process to build a code #70 number 6 turnout in HO using Central Valley turnout tie strips.

I also outline the tools and materials used to build the turnout.

The result is a turnout that more or less matches the overall look of a commercial turnout and costs less than $10.

NMRA STANDARDS (IMPERIAL)
S-3.2 STANDARDS, TRACK, STANDARD SCALE

NMRA STANDARD	
Imperial Standards Scale Track For Guarded Work	
February 20, 2010	S-3.2

The Span, S, is derived by knowing S = C-F.
C is the primary controlling dimension.

Scale	Scale Ratio	G			C			S			F			P			H	Wheel
		Target	Plus	Minus	Target	Plus	Minus	Target	Plus	Minus	Target	Plus	Minus	Target	Plus	Minus	Max	
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Figure 5: NMRA S-3.2 Track standards diagram – LINK. The yellow highlight is for HO standard gauge, [illegible]

STEP 1: Download the PDF of the turnout and mark ties to replace with PC ties

Adjustments to CV Turnout ties for PC rail attachment (#6 turnout)
Printed Circuit board (PC) tie throwbar
Cut gaps for frog
Use plastic tie from Z
SP style single headblock tie (use plastic tie from A)
Replace plastic ties with PC ties

Figure 6

Figure 6: I downloaded the #6 right hand turnout template PDF from the Central Valley web site. Notice I marked select plastic ties to be replaced with printed circuit board (PC) ties, and I use a PC tie on each side of each frog gap. Also notice I label a couple of the plastic ties that are replaced with PC ties and reuse them around the throwbar area (A and Z). I use a single long headblock tie to match SP prototype practice.

Figure 7: I print out the #6 turnout template full size and attach it to a scrap of plaster wallboard using masking tape. I find the plaster wallboard holds spikes well, making it a nice work surface for building turnouts. I protect the edges of the wallboard with duct tape.

Figure 7

STEP 3: Attach CWT tie strip to the work surface

Figure 9: I place the Central Valley #8 right-handed turnout tie strip over the printout that I taped to my subroadbed work surface. The plastic tie strips don't exactly align with the printed turnout, but it's close enough to use as a guide.

Figure 9: I spike the plastic tie strip to the work surface using a number of spikes as shown here. I want to make sure the ties will not shift on me once I cut out the ties that will be replaced by PC ties. Also, note I have inserted plastic ties A and Z into place next to the throwbar (see figure 8). In this photo, I have cut out the plastic ties using a fresh X-Acto blade. I've almost ready to add the PC ties, but first let's take a closer look at the modifications I made to ties A and Z.

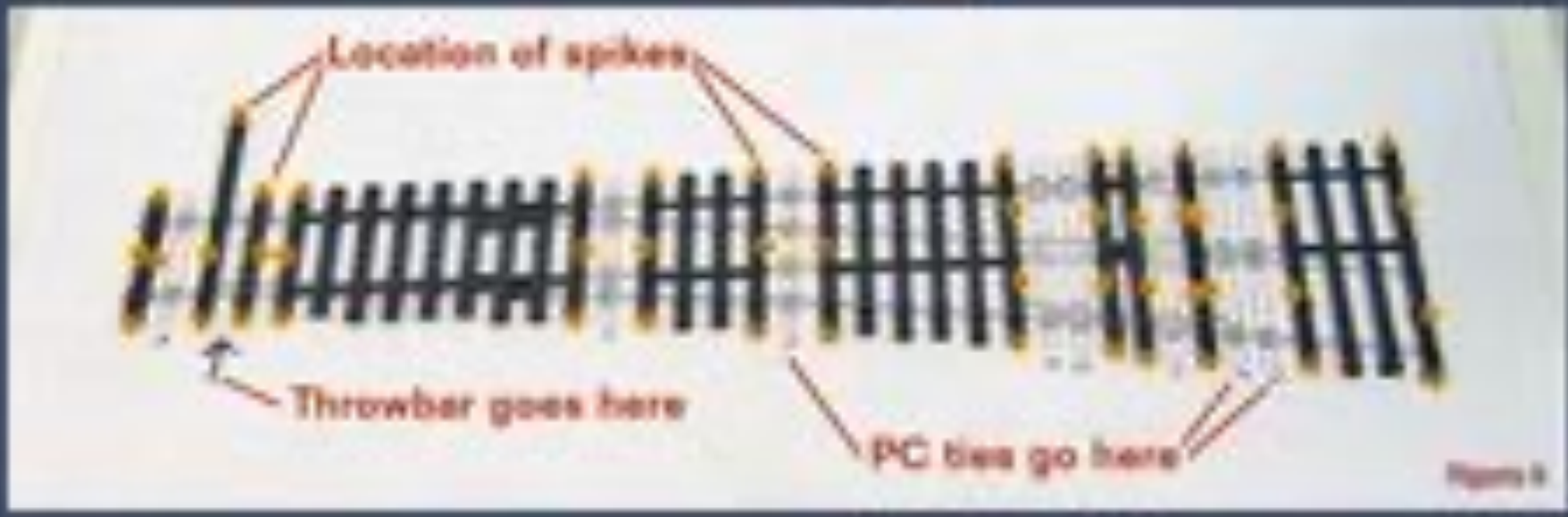
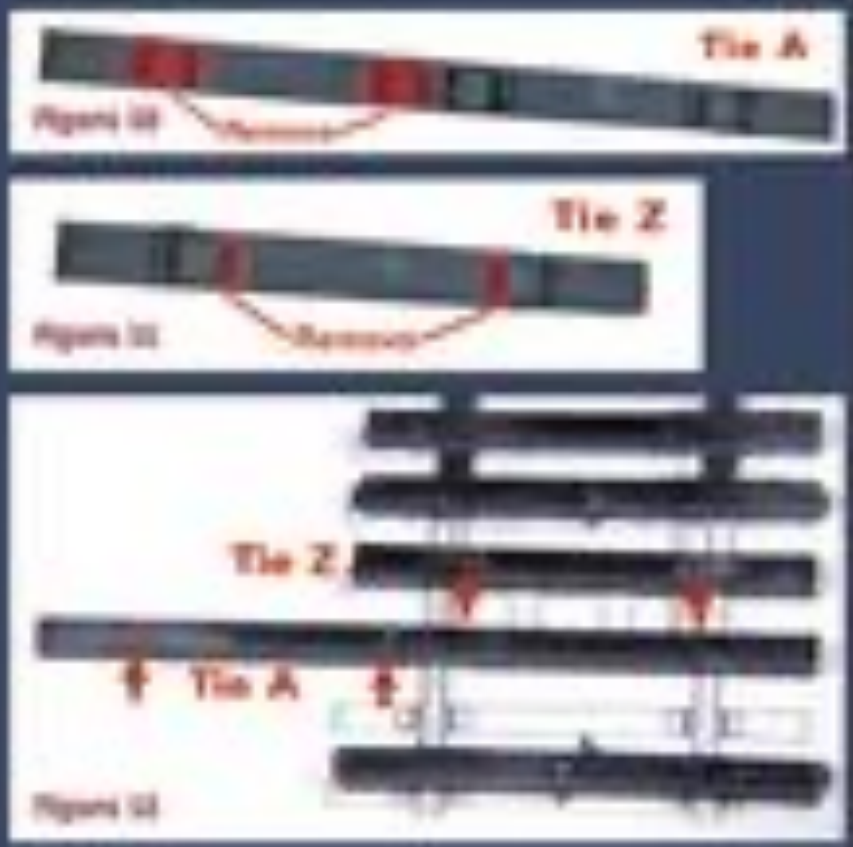


Figure 9

STEP 3: Remove tie plate detail from ties A and Z



Figures (i) (ii) : Certain parts of the tie plate detail need to be removed on ties A and Z as shown here. Tie A, the head block tie, needs to have the diverging track tie plates removed with a sharp X-Acto knife. Tie Z must have just the inner spike head detail removed (both so the tie so the points can move unhindered). Figure (i) shows ties A and Z in their new location with the red arrows marking the areas where I removed the detail using an X-Acto knife.

Materials and Tools

SPECIFIC MATERIALS

- (12) Fine Scale Micro Engineering (code 100) Steel Rail in Unfinished Bronze (brass)
- (1) Two Rivets Rail Tie Kit (OO/4mm Scale)
- (12) Rail from Central Valley (72 - OT Code 83) (metric sizes)
- Small Micro-Engineering spikes from their Tiny Spikes (Approx 1000 Kit) (Like spikes)
- 0.25" (6.5mm) mini-cork sanding
- Liquid Paint Flux (MG Chemicals Paint Flux, 4 oz)

(On the Fine Scale Micro and Central Valley pages, scroll down to find the product listed)

OTHER MATERIALS

- Cocktail
- Tinted Rail Brown (spray paint)
- Scrap Track (same as the fitting rail type)

TOOLS

- X-Acto knife and/or sharp edge razor blade
- Wahn 25-watt soldering iron with 0.060" Screwdriver Tip
- Solder (rosin core) with Lead (plus) and free nothing (Silence) supply of the melting tips can be had from your dentist)
- Fine point brush for applying flux
- Assorted needle files
- Flush cutting set nippers
- Wahn Bank for grips
- (2) Mill file for use with rust (Track fitting tip)
- Rail Track punch/Peg Ring tip (Rail Punch and Chip Log Code 70 (0.3) (2))
- Track soldering jig (Rail Tie Track Peg solder tool (5, 36, 48 code 70))
- Optional - a cross-cutting tweezers or tool are precautions which provides resistance

STEP 4: Replace select plastic ties with PC ties

Figure 13: I mark and cut each PC tie to length using the flush cutting rail shears.

Figure 14: In order to prevent shorts, I file a gap in the copper foil on the PC ties. For the first two ties past the points, I only filed one gap, to allow the turnout closure rails and plank rails to be the same polarity. Around the frog I file two gaps - one in each route.

Figure 15: The PC ties are not quite as thick as the plastic ties - so I apply two layers of 1/8" white automotive masking tape to the bottom of the PC ties to bring them up to height.

Figure 16: I spiked the PC ties down with a spike on each end. Notice how the PC ties are gapped. I filed more foil off the ties now ties to make it look more like the plastic ties(optional)!

STEP 5: Prepare the two outside stock rails

Figure 17: I mark the area of the stock rail where I will remove the base of the rail by laying the rail on the ties and marking the end of the points over the turnaber, and then find the other end by counting over 7 ties and making a mark.

Figure 18: I put the rail in a vise and use a 12" mill file to carefully file away just the base of the rail over the distance between the two marks. I want the file slightly to avoid touching the railhead with the file.

Figure 19: Here's the completed stock rail with a taper filed on the base. Notice I touched only the base of the rail - I did not touch the railhead with the file.

Figure 20: I tack the filed stock rails down to the ties with a few spikes. The rail plate in the plastic tool provide the alignment, so I only use a few spikes to hold the rails down into the rail plate.

STEP five: Solder the shrink rails to the PC tins — soldering technique in depth

Here's the soldering technique I use. Follow this process carefully and you will not melt the plastic tins and you will not need a heat sink.

Figure 21: There's a solid, dirty swede tip on the iron. It needs to be cleaned and tinned.

Figure 22: I wet the iron, apply a bit of cored solder to "tin" the tip, and then wipe the tip on a damp paper towel.

Figure 23: Once properly cleaned and tinned, the tip is shiny like this.

Figure 24: With the tip cleaned and tinned, I load up the tip with a bit of rosin-cored solder.

Figure 25: I apply a resin solder flux to the PC tin and rail (save. Applying a hot solder-loaded iron into this flux allows for very fast-flowing application of the solder.

Figure 26: I apply the solder-loaded tip to the rail base for just one second and the solder flows onto the base of the rail and PC tin without melting any nearby plastic bits.

STEP 6b: Solder the stock rails to the PC ties

Click here to play this video...

Figure 20: Here is the turnout with the stock rails soldered to all the PC ties. Note that on PC ties 3, 4, and 5, I only soldered the outside of the rails because the inside of the rails will be where I solder the guard rails. I don't want any solder interfering with the proper placement of the guard rails.

◀ This video illustrates the soldering process covered on the previous page.

STEP 7: Prepare and lay inner stock rails

Figure 27: Using a 10" mill file on #6 frog point filing jig from Fast Tracks, I file the frog point on each of the two inner stock rails.

Figure 28: I lay the two inner stock rails over the #6 turnout plate of a Fast Tracks frog point soldering jig and apply rosin flux.

Figure 29: A quick touch to the fluxed area with a hot soldering iron tip pre-loaded with a little solder and the solder flows onto the rails and makes there a solid joint.

Figure 30: I place the inner stock rails onto the slots of the CV turnout ties.

Figure 31: I slide the inner stock rails in/out a bit, using an NMRA track gauge to ensure the track is at minimum gauge through this area, then tack the rails in place with a few spikes.

Figure 32: I solder the inner stock rails to PC ties 1 and 2 on the sides of the rails I can reach. I apply minimal solder to PC tie 2 to avoid issues later with the frog wing rails.

STEP 8: Prepare closure frog rails

Figure 23: Using a #8 turnout template (shown), I measure and mark a 1½" length of rail for the location of the frog wing rail bend.

Figure 24: I perform the wing rail bend using a pair of needle nose pliers.

Figure 25: I check the bend against the turnout template turnout, adjusting if as necessary until it matches the template.

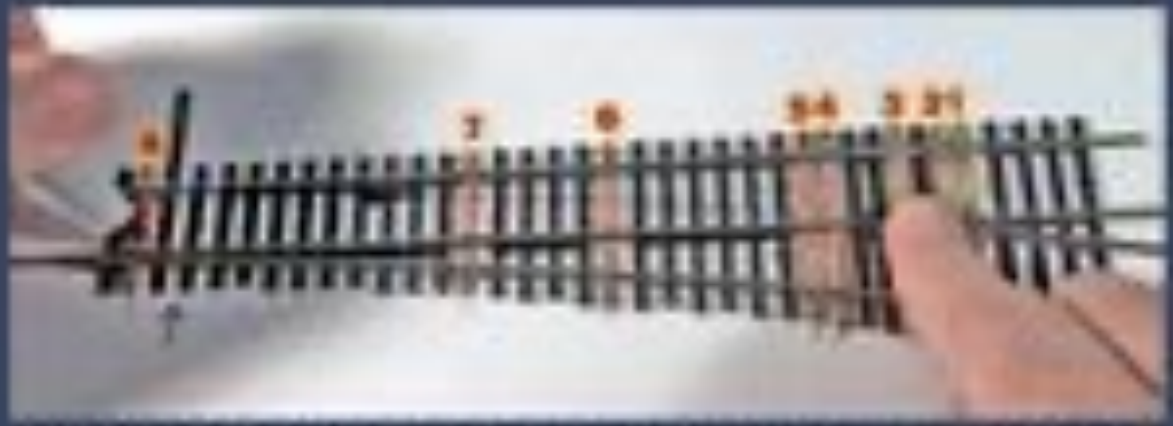


Figure 26: I place the twisted closure frog rail into the slots in the plastic ties, mark the end of the point with a Sharpie® and cut it with flush cutters. I'm constructing the frog, closure rails, and points all as one continuous length of rail because I find that simplifies the points installation. There is no need for any mechanical points hinge, plus electrically the points are now powered from the stock rails through the copper foil on PC ties # and 7.

Figure 27: I use the 1/2" drill bit with a #8 Fast Tracks point filing jig to file the point end of the closure rail to a true taper. Follow the Fast Tracks guidelines for using this jig to file the point as shown (in the video on their website).

STEP 9: Lay the closure/frog rails

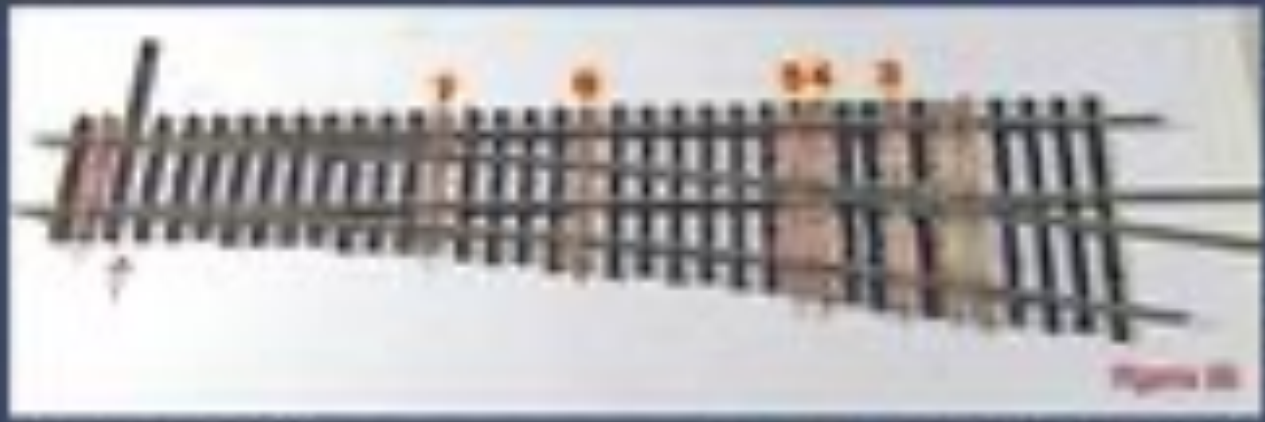


Figure 39: When bonding the wing rail flares before soldering the rail down I follow *PEAK Recommended Practice 115*. My personal preference is the middle option – the combined bend and bend, since I think that makes the most realistic looking flare.

Figure 39: I solder the point closure / frog rails down at PC box 2 through 7. I only try to solder on the stock rail side of the closure / frog rails on box 3, 4 and 5. I solder both sides of the closure rails on PC box 6 and 7.

PC tie 7 is far enough away from the threedar area of the points before the slip arrow is on the paper that they cross freely with very little pressure.

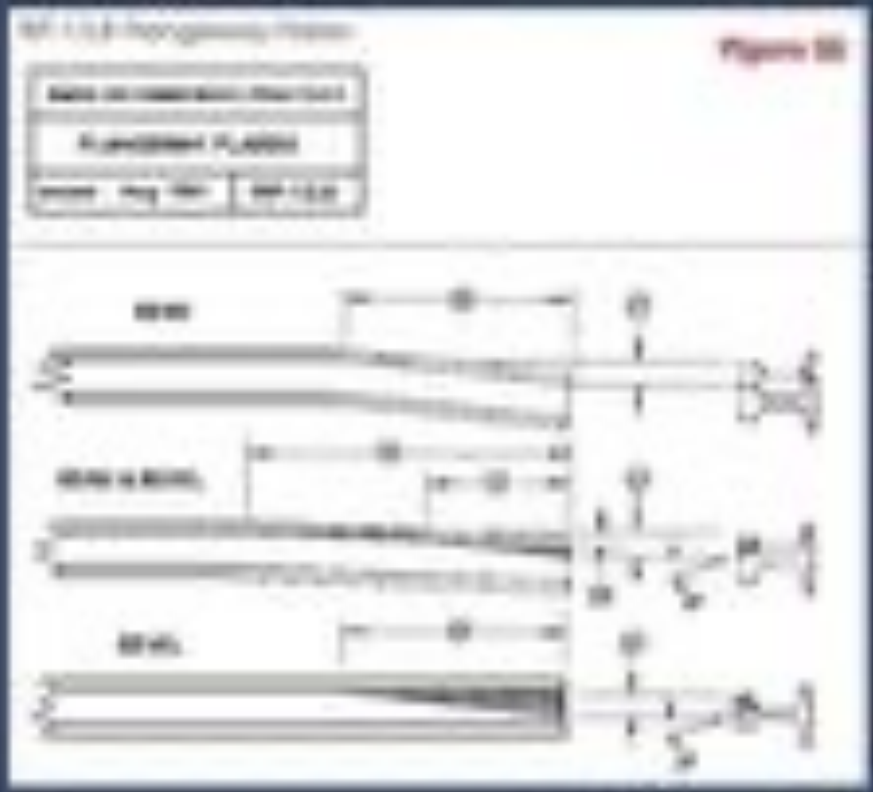


Figure 40

Figure 40: Once I've soldered the closure/frog rails down I like to take an in gauge truck and do a rolling test through the frog area. If the rails were pushed in the slide properly and set at minimum gauge through the frog, the truck will not wander but should roll through the turnout flawlessly, even without guard rails!

STEP 10: Prepare and lay guard rails

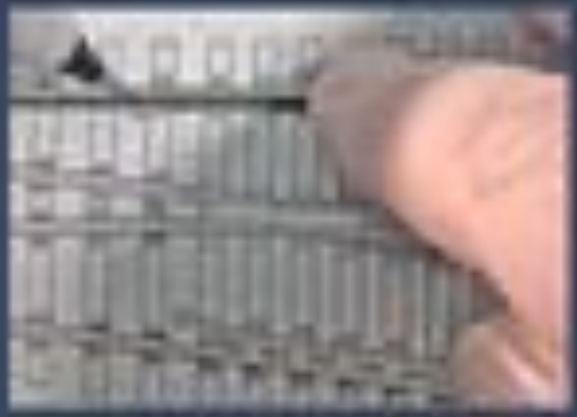


Figure 41: I take a piece of scale #3 rail, lay it against the guard rail area of the turnout template, and mark the length with a Sharpie®.

Figure 42: Using the flush cutters, I cut off the guard rail at the mark, then I bend and file the flared ends per Figure 39.

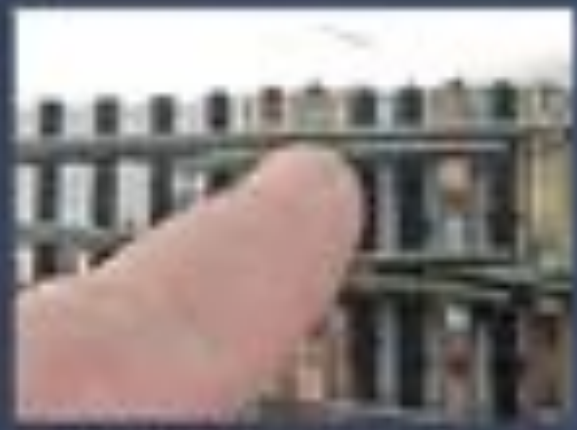


Figure 43: I test fit the guard rail and determine the position using the flangeway side of an NMRA gauge. Then I tack it in place with a couple spikes.

Figure 44: Once I have both guard rails tacked in place with spikes, I apply flux and solder on PC ties 3, 4, and 5. Generally, I first solder one PC tie, then test the spacing of the guard rail as shown in figure 45. If any adjustments are needed, heat the joint and move the guard rail around with tweezers until the check gauge is perfect.

Figure 45: I double check the soldered guard rails to see that they match the NMRA gauge check gauge guard rail tabs perfectly. Also, test the turnout again with a truck.

STEP 11: Prepare and solder throwbar

Figure 46: I cut a PC tie to a standard scale 8 foot length and center punch it for drilling the throwbar hole.

Figure 47: I drill a #53 hole in the throwbar using a pin vise.

Figure 48: I use the mill file to remove the copper foil from the tune area for about 1/4" in each direction. I then apply a couple layers of masking tape to shim the throwbar.

Figure 49: I place the throwbar in the slot cooked with the screw slot spike it down. I put a PC tie spacer between the point and stock rail (remove the foil as solder won't stick to it) and hold the point in place with a spike.

Figure 50: I apply flux and solder to the point then remove the temporary spike. I then slide the soldered point against the stock rail, move the PC tie spacer and spike to the other point and solder it.

Figure 51: With the points soldered, I test the throw to make sure it is smooth and does not bind. If necessary, I use a needle file to remove any solder that passed under the point, but it should be against the stock rail.

STEP 12: Remove turnout from plastic ties and cut gaps

Figure 12: At this point turnout construction is basically finished, so I remove all the spikes from the PC ties. I leave the spikes holding the plastic ties since they need to remain in place until I'm ready to glue the turnout rails to them.

Figure 13: With all the spikes holding the PC ties removed, I remove the turnout assembly to make it easier to cut the gaps around the frog.

Figure 14: I use a motor tool set on slow speed with a double-thickness cutoff disk. I carefully cut through the rails between the double ties on the back end of the frog.

Figure 15: I also cut through the rails between the other set of double ties on the front end of the frog.

Figure 16: With the gaps cut, I remove the shimming layers of tape on the bottom of all the PC ties.

STEP 13: Test for shorts, fill gaps, and clean up solder joints

Figure 37: Using a multi-meter, I set it on continuity testing (sounds a tone when there's a connection) and check the turnout for shorts

Figure 38: I superglue black styrene scraps from the kit any into the frog gaps. I let the glue set for a couple hours then trim the styrene flush to the rail head using a sharp X-Acto knife

Figure 39: I use a small milling bit (free unlimited Dust pack) supply from my dremel to remove excess solder and flux on the soles of the rails. Inset 2 shows the result

Proto87 Stocks and Fast Tracks

Proto87 Stocks sells a turnout kit that was inspired by our "Fine Wire Frog" process, based upon the Central Valley Turnout Kit kit, using well-cased frog, their upgrade frog assembly and some extra turnout detail parts.

They accept [link] for the kit be of this outings, and if you like their frog assembly and want the extra details on one can supplement your turnout from the kit's a good one.

As you might expect, Proto87 Stocks is an excellent kit (I really prefer Proto 87 level accuracy, as standard mainstream RP track. Surprisingly

Proto87 Stocks does sell a few items for the older scales, one mile scale is their product line is for HO.

If you model one of the older scales and want to go the up both turnout route, about the only choice you have is Fast Tracks. You will need to get creative in the larger scales if you want good for shelf and older track detail, however.

Fast Tracks makes turnout gauge and scale you can imagine, such as S, O, ½, ¾, and 1 as well as circuit sizes. They also provide jigs for all track common narrow gauges: 2 foot, 30 inch, and 3 foot gauge.

Fast Tracks has assemble jigs for most gauge from Kelly. Brass easy turnouts, easy, crossovers, double crossovers, and crossings in a number of angles. As if that isn't enough, they also sell flextrack for straight track, and inserts for various curve radii.

Fast Tracks does sells ancillary thing and soldering jigs, which I also use in my post mortem system.

Fast Tracks is an OMRI approved, so please and then send she what mods out of my trackwork products and supplies they provide. ●

Provide Feedback

STEP 14: Glue turnout to ties, paint, and clean rail heads

Figure 60: I put a tiny pipette on the top of the superglue bottle and apply just a spot of superglue to each tie plate slot, being especially careful around the points area.

Figure 61: I press the turnout assembly in place onto the plastic ties and hold it for a few moments, making sure it has seated well.

Figure 62: The point end of the turnout didn't stay perfectly seated in the tie slots, so I used a scrap of particle board and a full paint can as a weight and let it sit for an hour.

Figure 63: Once the glue is set, I remove all the spikes and take the turnout outside and spray paint it with a spray can of Testors Rail Brown. I use Q-tips dipped in lacquer thinner to clean the rail heads.

Figure 64: So here is my finished, completely un-wired turnout, ready to install. You can do more to superdetail a turnout, but we'll leave that for a future article. ☒

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SNCF 2D2

A high-quality Brass kit in HO by [illegible]

[illegible]

Ulrich Hochberg describes some of the rolling stock to be seen on the Uchuetsu & Oshoki (UO) Layout, which represents a location on the Chuo main line. Photographs by Andy Zeitler

Yamanouchi Oshika

Locomotives as Loads?

— by Matt Swett

Learn what's inside that plastic diesel, and create an eye-catching load for your freights ...

Reader Feedback

As modern railroaders, we strive to keep our layouts and trains interesting. While we spend hours assembling scenery, replicating our chosen prototypes, the reality is that a string of boxcars generally isn't very visually stimulating. Open cars, such as flat cars or gondolas, can display interesting loads, and another unique load can be locomotives being hauled within the train itself.

"Why take a perfectly good locomotive and make it a load instead of using it to pull a train?" you ask. The occasional excess diesel on railroads during motive power transition periods and moves to shops for repairs or repair- behind power trends in locomotive leasers, historical groups, or scrap dealers. These moves never ceilings to grab cameras, and offer us a chance to bring 'non-standard' locomotives to our layouts while maintaining the integrity of our chosen theme. Just imagine an old Alco pulled by two newer Geeb 4 power, enroute to a project. Or imagine a small switcher a thousand miles from its normal home.

"When a locomotive [illegible] is sold or donated, it often remains in its former owner's livery with only the new owner's reporting marks applied allowing the piece to be moved."

...minute to a shortline or historical society for preservation.

Best of all, paint schemes don't matter when modeling a locomotive 'road'. This allows us to employ otherwise out-of-place or one-region or time-period-specific locomotives to model. Modeling a railroad locomotive doesn't have to be a costly project. Those without preference to paint or body costs will find modeling a locomotive 'on-a-budget' to be extremely inexpensive if they use manufacturer-overstock, clearance items, or used product found at train shows, hobby stores, or online.

Reporting Marks

The first step in modeling a locomotive 'in transit' is to understand a little about how the AAR (Association of American Railroads) assigns reporting marks. Reporting marks are the letter and number of a specific piece of equipment, either a locomotive or car, that makes it compatible for interchange.

Most of us are familiar with the alpha codes of 2-4 letters such as BN (Burlington Northern), UP? (Union Pacific Yard), ATSF (Atchison Topeka & Santa Fe), etc. But many are unfamiliar on both the 4 letter found at the end of the alpha code, which is a letter designating private ownership.

Equipment owned by private entities, such as lease companies, shippers, industrial groups, and individuals all feature reporting marks ending in an H. The designation this equipment is not owned by a railroad. Several familiar examples are GBSX (Gunboat), FTX (Trailer Train Corp.), MBPX (Mugging Brothers Backhoe & Bobby picture trains) and UTLX (Union Tank Car Co.). Privately owned equipment aren't just limited to rolling stock, as the locomotive side presents GMDX (EMD Leasing), HLCX (Hi-Line Locos Ltd), and NJCX (NJCX Leasing) among many others. Those who like to model freelance can even create their own!

Additional leasing companies, or railroad group has simply adding an X behind several letters such as some one's initials.

Figure 3. This reporting marks of this caboose are an example of equipment that remains in an older livery with new reporting marks making it AAR compliant.

Figure 3.4. This HLCX (Hi-Line Leasing) SD60 is an ex-Union Pacific locomotive that may live out the rest of its years wearing this 'removed' UP livery.

"To move a dead locomotive, it is placed into what has been referred to as 'hotbox mode', disengaging the traction motors, while incorporating the locomotive's brake system into the train's braking system."

so why is it important to understand the AAR codes? When a locomotive (or railcar) is unpowered, it often remains at its former owner's railroad with only the new owner's reporting marks applied allowing the piece to be moved. This can lead to the new reporting marks being quickly and haphazardly applied since fulfilling the AAR requirements for movement is more important than aesthetics. In some instances equipment is even placed into service wearing the former owner's livery until there is sufficient time to repaint it. Following these examples we can intuitively attribute all paint schemes that would be otherwise out of place in our respective worlds. All we have to do is change the reporting marks.

The second thing to understand about locomotive loads is they are not handling their wagons. Unlike a conventional locomotive that can be "shunted" (shuffled into) to function under the control of locomotives, often made to operate as part of a consist, a locomotive "on transit" is not operating but towed. It is officially considered "Dead in Train" or "Dead in Consist". To move a dead locomotive it is placed into what has been referred to as "hotbox mode", disengaging the traction motors while incorporating the locomotive's brake system into the train's braking system. This allows the locomotive to roll freely while having an active brake system, similar to a caboose.

Special rules also pertain to tonnage limit being treated. These vary from road to road, often pertaining to the placement of a dead locomotive within a train or the speed of the train. For example, the 1997 NORAC (Northeast Operating Rules Advisory Committee) published the following:

Rule 110a - Engines equipped with draft gear 'hauled' dead in a train should be placed next to the hauling engine. Under no circumstances may they be placed further than 10 cars from the hauling engine.

Rule 110b - Each engine unit must be counted as a car. Engines units must be separated by one or more cars with operative air brakes unless

it is known that: 1. Engine units are equipped with alignment control couplers AAR 3. The air brake equipment on each unit incorporates a brake pipe vent valve.

Anyone familiar with 1980s northeastern railroading will remember entire trains of obsolete Conrail locomotives, each separated by a gondola or flat car, which would provide the scrapper's torch. Recreating a scene such as this with only 2 or 3 locomotives will leave crews busy with the extra moves of spare cars, while challenging dispatchers to find adequate run-around, around the slow-moving scrap train.

Model a Dead Engine

Now that we know a little about AAR codes and the exceptions notes, tons of a dead engine, let's look at modeling one. Just one as I transform a Proto2000 Burlington Northern SW1200 into a load, creating a unique and exciting piece of rolling stock that can play entertain operations, for one train load.

"Anyone familiar with 1980s northeastern railroading will remember entire trains of obsolete Conrail locomotives, each separated by a gondola or flat car ..."

This type of project allows us to utilize models we would not normally run on our layouts, providing variety while allowing us to expand our layout edge outside of our modeling 'comfort zone'. In this instance, I chose a weathered road-slab switcher, a model quickly disappearing from in the contemporary rail scene and one that would also be completely out of place on a modern era eastern road layout. The choice of this obsolete diesel that would also provide a credible story for the model - a locomotive that was retired, placed in storage, sold to a locomotive broker and was now destined for scrap.

No matter what brand or body style we choose, transforming a model locomotive into a load requires the model to not have the any other piece of rolling stock. This means disassembling the locomotive and removing the drivetrain. This is a task that can worry all but the most experienced modelers fortunately, taking a locomotive apart isn't difficult. You just have to understand how they are put together and what you are looking at.

STEP 1: Disassembling the Shell

Most diesel locomotive models consist of two basic subassemblies: the shell and the frame. The first thing to do is to separate these. Various of locomotive models manufactured in the last 10 years are made up of a shell, consisting of multiply pieces such as hatchways, a hood section, and a cab, which all interlock together to form a one-piece body. A combination of keyhead bolts, screws, and tab locator fasters are generally used to secure the shell to the frame. Follow the manufacturer's instructions to remove the shell and expose the locomotive's motor and drivetrain.

Figure 5: The Proto2000 line is typical of most modern locomotive models. All-style components interlock to form a one-piece plastic shell that reveals only the useful locomotive frame.

STEP 2: The Drive Train

Once the shell is removed we are left with the frame components which include the locomotive's drivetrain. While the collecting parts existing on the drivetrain may seem complex, they are fairly basic as shown in figure 6:

- The motor unit, a Pittman or can-end (generally less a PC board or wire)
- A driveshaft with a worm gear, extending from each truckset to each truck.
- A retainer clip located on the top of each truck
- The trucks (wheel assemblies)
- Gearing that are used in the frame to increase traction
- A fuel tank casting

Figure 6: The drivetrain of a model locomotive is composed of several basic parts including a motor with flywheels, driveshafts and gears.

STEP 3: Disassembling the Drive Train

Most trains are not factory-wired with the parts that are "union and forged" we use to begin disassembling the drivetrain, so that wheels can roll freely. One of the engineering concepts employed on a model locomotive is that weight must exist with traction, increasing the pulling power of the model. To prevent models this locomotive model's lower weights added to the frame, often molded to fit the inside of the shell. The first step in removing the drive train is to remove the weights to gain unimpeded access to the drivetrain components. After locating the weights, locate the screws that secure them to the frame. Remove the screws and the weights should fit inside the frame, allowing full access to the worm gear train.

The next step is to remove the wiring to the motor from the electrical components. Many models use two wires connecting them each to pick for a powered circuit board on top of the motor. Because the locomotives and more we need for electrical power, run each wire halfway between the truck and motor. Then pull other wiry wiring the other half. Pull wires should also be marked by either wrapped the bracket or use it for parts.

Figure 7: Most manufacturers add weight to a locomotive frame to increase traction. Removing the weights allows unimpeded access to the engine's drivetrain.

Figure 8: Two wires between each truck and the motor carry the electricity picked up from the rails to the motor. Once these wires are cut the motor will be electrically isolated and inoperable.

STEP 3: Disassembling the Drive Train *Continued ...*

Now that the motor has been mounted, the screws are in firmly locked in place. To make the model free rolling, we need to remove two more items - the driveshaft and worm gear. A model locomotive uses driveshafts to transfer power from the motor to a gearbox located on each truck. Ideally and, on the motor assembly, it turns the driveshaft which is equipped with a worm gear at the end of the driveshaft. The worm gear then turns non-conductive gears within the truck itself, causing the wheels to turn.

If the motor does not turn, then the driveshaft will remain stationary. You remove the gears within the truck to remain stationary mounting to wheels that are locked into place. Removing the driveshaft and worm gear assembly will allow the wheels to turn freely, since there is nothing to stop the internal gears of each truck from turning.

Although the assembly may look complicated, the driveshaft and worm gear can be removed in a matter of seconds. First locate the retainer clip on the top of the truck which holds the worm gear in place while also holding the truck in place on the frame. Carefully slide a thin screwdriver between the retainer clip and the gear board on the truck gently pressing the retainer clip outwards while lifting it away from the gear holding it in place. Once it is free of the pins, it can be removed from the truck allowing access on the top of the worm gear. Now remove the worm gear/driveshaft assembly from the gear cases on the truck by pulling it upwards while pulling it away from the motor. Then replace the retainer clip. Do so to check the gears within the truck to turn, allowing the wheels to roll freely transforming the locomotive into a piece of rolling stock.

Figure 9: A driveshaft turns a worm gear at the top of the gear boxes of the truck. The worm gear then turns gears inside the truck causing the wheels to turn

Figure 10: Making a model free rolling mountain removal steps. The first step is to remove the retainer clip on top of the truck

STEP 3: Disassembling the Drive Train *Continued ...*

Figure 11: The easiest way of disabling the drivetrain is to remove the driveshaft and worm gear from the top of the gear tower.

Figure 12: Once the worm gear has been removed the wheels of the truck will turn freely. The final step is to place the neoprene ring back onto the top of the truck, once again securing the truck to the frame.

Figure 13: Whenever a model is disassembled, mark each part with the proper orientation (FRONT, REAR, LEFT, RIGHT, etc.) to insure that everything goes back together correctly.

Most fuel tanks are one-piece castings secured to the frame of a locomotive with a combination of pressure and the adhesive applied to the interior of the tank casting. Some fuel tanks are unique identical twin mirrored shell halves that are bolted to the locomotive frame. The key to insuring that one or any other parts are reattached properly is to mark the underside of the part with an X, covering the part that faces the front of the locomotive. The casting can be removed by gently prying downwards between the top of the casting and the frame of the locomotive, prying the casting free from its mount.

Figure 14: The fuel tanks of most locomotive models are one-piece castings that can be removed by gently prying them from the frame.

STEP 3: Disassembling the Drive Train *Continued ...*

Figure 13: When transforming a powered locomotive into a 'dummy', removing the motor is not a requirement, but is advisable since it will lessen the weight of the model while allowing you to use the motor in other applications.

Figure 14: Removing the motor from a model locomotive requires removing any screws holding it in place, then pressing the motor mounts from the frame with a screwdriver.

With the fuel tank removed, the underside of the motor mounts are exposed. Remove and retain holding the motor to the frame. Next, remove the metal leaf grounding upwards on the motor mounts, pushing them from their seats in the frame. The fuel tank can now be reassembled and the motor can be used for other projects, such as repowering an older locomotive, or placed in the shed as a spare part that may be needed for a future repair. (Figure 14, 15)

Figure 17: With the locomotive's drivetrain fully removed, we now have an unpowered chassis that the shell can be mounted onto.

After double-checking the front coupler cam and mounting the chassis onto body, replace the shell, reversing it following the manufacturer's instructions. Then reinstall the couplers and coupler boxes.

STEP 4: Detailing and Weathering

Up to this point has been a fairly difficult, largely understanding the mechanics of a model, then reconfiguring it for a new purpose. The project can now become very creative, exploring an art form almost unknown on my rail but familiar with. It also allows us to try new techniques and tools in the creation of a unique one-of-a-kind model.

When I chose a diesel to use as a starting point, I intentionally chose a road that I wasn't very familiar with – in this case Burlington Northern. Sure, I had seen the giant and tried locomotives in magazines, and I even knew that the Burlington Northern was part of the ancient Sky Blue Express, etcetera, but other than that, the BN was a mystery. Using detailed online resources, I learned that the group of Burlington Northern SD70M's were originally erected for the CB&Q (Chicago, Burlington & Quincy – unfortunately known by the Burlington Route) around 40 years ago.

Photos revealed that adding a few detail parts would more accurately represent the first prototype, either including a Dynamic Brake A/C/D Electrodes antenna, and ALCO sniffer device on the cab roof. I entertained that some BN switchers were also equipped with an all-weather window fastening as standard kit. This was quite different than the type included with the common beast. After a trip to the spare parts bin to retrieve a coupling bolt cast from an EMD model, the amazing was complete and it was off to the paint shop to turn the shiny new locomotive into a well-worn mixed shipping years of service.

Figure 18: Even adding a few details will make a more production model look more like a specific prototype. In this case the Keystoker antenna and the strobe beacon at the front of the roof are signature details of the Burlington Northern.

When weathering a model, we often try to make it realistic, maintaining a unit that has been operated for years in all sorts conditions. In the case of the switcher, we want to do this in an opposite, maintaining a unit that has endured no usefulness, left in rail and new lines.

I began by airbrushing the model with Floquil Grimy Black, followed by the normal method of weathering, however he lighter, dusting it on heavier in this area. She's just applying a much heavier coat than I normally would. She was followed with a heavy coating of Model Master Acryl, washed over the with some Grimy Black paint.

As was the Cascade Green paint of the model had been exposed under the mix of grease and rust. So the model was subsequently airbrushed, starting at the bottom, allowing the weathering colors to run down the sides of the model and settle in pockets that would be typical of equipment that had sat for a long period of time. Once the first round of weathering had been completed, I dusted over the sides of the model, applying a thin coat coating to the grimy black to add some variation of the model in addition to the weathering. Last task, a bit of Dullcote, that was used to seal the weathering, gives the model a flat finish.

Figure 19: Weathering can be the difference between a good model and a great one. While we all have our own individual quirks/styles the weathering applied to a model should reflect the service it's seen, helping to tell the story of the model.

STEP 5: Repainting Marks

Figure 20: One tool that can be very useful in recreating spray painted markings is a paint marker with an extra-fine tip.

Figure 21: One marking that can be found on almost every ex-diesel locomotive is TBO FLUC, indicating the tanks are empty and should remain that way.

Figure 22: When new repainting marks are applied to a locomotive they are often applied quickly and sometimes haphazardly. Photos 21 and 22 show two treatments for the application of repainting marks. We find using the number already visible on the hood to consistently write a new alpha code. The second, along with the new alpha code is consistent with the number

STEP 6: Plywood Window Covers

Figure 24: Plywood is often used to cover the windows of equipment that is in long-term storage. This removes a tempting target from vandals. The plywood covering the top window of this editorial polaroids weather front reaching the interior causing further damage.

STEP 6: Plywood Window Covers (Continued ...)

Figures 15-16: A trick to make fabrication quicker and reduce waste is to use templates made of paper. One excellent material is "Super Sticky" Post-It Notes, allowing the note material to be shuttled directly to the surface of the model so the material being cut

Figures 17-18: Attempting to round the corners of the square window inserts or match the model's windows is nearly impossible using a knife. It is much easier to cut the inserts as squares or rectangles and use a file to round the corners

STEP 6: Plywood Window Covers (Continued ...

Figures 19-20: Rounding up the windows of equipment placed in storage will not only deter intruders/ vandals, it will also make the equipment stand out, whether it is being hauled in a boat or is hoisting down the rail on a long forgotten siding.

STEP 7: Spark Arrestors

The exposed electrical or mixed mechanical/electrical components of internal combustion engines must be protected from fire hazard. While mounting up a locomotive will present the risk of fire, especially the exhaust stack and ground rail or loose from releasing the hot ash of the prime mover. There are several methods of capping exhaust stacks. These vary with the weight of fitted a locomotive with the simplest method is to simply place loosely spark arrestor directly over the stack, allowing gases released. The second is to screw the top of the stack (plastic), a method reserved for locomotives that will be out of service for extended periods.

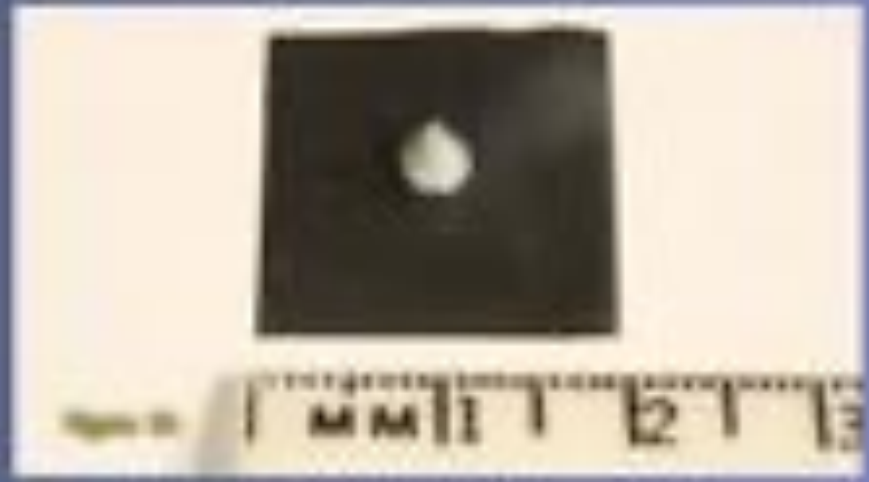
Figures 21: Protecting stored equipment from the elements is vital to the equipment returning to value. One common method is to cover the exhaust stacks with plastic preventing rain or snow from entering the inside of the prime mover.

STEP 1: Spark Arrestors *Continued ...*

In the case of the 8H switches, I chose to use the proper method and a one-way locks more drastically, but the switches is equipped with spark arrestors on top of the locks offering a natural place to mount the plastic. Wrapping the spark arrestors is a fairly simple procedure. Begin with measuring the mounting stems of the coatings to accommodate the additional thickness of the wire that would be secured to them. Hold the coating with hemostats, then slip along the mounting stems with a coarse file, carefully creating the coating to ensure that the stem is filed evenly across.

Figures 22-23: The mounting stems of the spark arrestors will need to be trimmed down to compensate for the thickness of the plastic that will cover them. A file can be used to send down the stems.

Next, a 2-inch x 2-inch square was cut from a sheet matching. I centered the spark arrestor coating to the center with the hemostat then marking up in the air. Once dry, the small section of plastic was folded over the coating, and a thin bead of solvent was applied along the bottom edge to lock the folded section together.



Figures 24-25: A square cut from a common household trash bag captivates the plastic applied over the spark arrestors. Begin by cementing the top of the coating to the center of the square, then press the wire over the coating, cementing the edges together.

STEP 1: Spark Arrestors *(Continued ...)*

Figures 26: Twist the plastic covering material into a cone shape and cut off the excess with a hobby knife. Add a drop of cement to the bottom of the stack to keep the plastic from unraveling.

Mark Hulett has been a model railroader and railfan for 44 years. His interest in railroading grew while growing up in New Jersey surrounded by freight and passenger rail lines.

Presently residing in Dallas, Mark and his wife Vickie share the hobby, modeling the area he grew up in: northcentral Jersey.

Mark "I would have joined this one" Detroit has been employed by Conrail Inbound Railroads, Kurt Model Accessories, and in the Allen Keller Conrail Model Railroads DVD series. Mark has had articles in Kalmbach Publishing's Model Railroader, Railroad Modeler, and Model Railroad Journal. Mark's work and Model Railroads, as well as videos of railroad ops

STEP 7: Spark Arrestors *(Continued ...)*

Figures 27-30: Modelling a locomotive either to steampipe or to tramroad can be a fun experience that will allow us to learn a little about the inner-workings of our model locomotives. It can also provide new uses for models that have mechanical problems or would otherwise not fit into our modelling theme.

Figure 39. 3D click-n-spin of Walt's finished deathwaddling lava model. Click here to display an image you can spin with your mouse.

Simple and fast concrete paving

INSULATION BOARD AND PAINTS ARE ALL YOU NEED FOR A REALISTIC SURFACE

To represent the concrete slabs, I cut out a chalk carpenter's framing square to mark off a 4-inch grid, then cut the pavement grooves with a sharp hobby knife.

These common materials, which I already purchased from a discount store, were all that I needed to gain quick inspiration toward the appearance of spring concrete.

toward the groovers, so I headed to my favorite light-duty, rotary tool to score the paint downwards into the grooves. The paint takes a while to dry, so it's an exciting, 5-minute overnight between coats.

When the concrete had completely dried, I removed the masking by rolling a wide roller from a one-inch masking tape. I filled bigger blobs about points with Phillips Premium Wood and Plastic Wood Base Finish. I brushed the wide grooves over the surface—the paint was acrylic paint so not gotten on a wet painting bit.

I rang paper towels and hung a pencil on to create the wash that had flowed into the grooves. I gently dabbed away the excess. Then I also left the towels in a bowl overnight where it was wet. If you do happen to create too much wash, you can apply another coat of wash and brush it out to apply with paper towels.

The three shades and dried pebbles gives the pavement surface a quite effect, just like the concrete pavement on an old gas station. With this technique, making concrete surfaces is a simple and realistic way and rewarding project.

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Consisting and motor performance

With Digital Command Control consisting and motor control features, Rob Alley Shark 2-8-8s and Athearn SD40-2 run well together. Mike Polograph gives three examples of how to control locomotives in this month's column. Bill Zuback photo

Just like real railroads, model railroaders often run multiple locomotives on the same track. Using Digital Command Control (DCC), there are a number of ways to mix two or more locomotives on the same circuit.

Each locomotive has a DCC decoder to connect the digital signal to the rails as a voltage that controls the speed. In order to run each locomotive independently, a decoder has a unique address programmed through the use of a configuration variable (CV).

There are two types of addresses: short (CV1) and long (CV17 and 18 together). The short address is often called the two-digit address and the long address is referred to as the four-digit. A particular DCC command always is the same address. The seemingly complicated task of programming addresses is often made easier through the use of a menu-driven operation which is available in newer DCC command stations, as well as through computer programs, such as Decoder Pro (www.wangrow.com) and Model Railroader's Prodigy DCC Compliant Interface.

The simplest way to run multiple locomotives together with one throttle is to program each decoder to the same address. The DCC throttle sends one command to one address through the rails and all of the decoders will respond. In operating locomotives of opposite directions, the decoders' motor leads must be wired opposite from each other so one can run CW to correspond the direction the DCC throttle is set to, while the locomotive with the reversed motor leads will run in reverse.

This method works well with locomotives that are permanently coupled together. On the early days of digital model locomotives, it wasn't uncommon to have a set of 3 units connected with shunters. Railroads have discovered that one of the advantages of diesel locomotive now is lower overall speed in one of the locomotive's most operating projects. If you're modeling a period after the late 1990s, you'll probably want to run and switch more like shunters. Programming locomotive addresses every time you build and make a consist could prove cumbersome using the single-address approach.

Another way to program multiple units is with advanced consisting. This is accomplished through most DCC system command stations. Each DCC system sets up consisting a little differently, and some don't support it.

After setup, the consisted locomotives receive a single command from a throttle. The locomotives each run a separate decoder in each locomotive on the layout.

Through an programming is done to the decoders and each decoder retains its original address (advanced consisting does have some drawbacks). Functions (with many advanced consists) cannot consistently result be easily refresh can affect the performance of your DCC system. Universal consisting won't work if one operates on both even speed lamps and a dual beam and want to maintain constant between the two units you're programmed both DCC systems with the same command consist.

A third way of consisting with DCC is called advanced consisting. Some decoders have a special configuration variable (CV19) that contains a short (two-digit) address and a direction bit. If the address portion of CV19 is non-zero, the decoder responds to the address programmed into CV19 instead of its normal active address. Not all decoders have CV19, so it's not as "universal" an advanced consisting, but it has some advantages.

Unlike advanced consisting, advanced consisting is available. A set of locomotives can be parked from layout to layout and remain consisted. However, this approach requires that you remember the consist address, most likely not one of the locomotive road numbers. I learned

Mike Prestgrove

cranking can be a problem if the loco seems to be unable to move) then the sound will not respond to the correct direction.

If you have a problem with locomotives that have part of an articulated chassis, make a test articulated chassis using the same wagons and track where that can run. Also refit sprung pin for decoders' circular pickovers if it has to work.

With some DCC systems the sound options is programmed into the decoder and the DCC command station. This isn't a requirement but it can be a convenience. The consumer options are now always the most available two digit control address for the decoders, but it uses each one of the controls' primary address as a second other. The user has a selected a consistent for the sound decoders.

Operating multiple units together can cause some problems or problems. If the locomotives operate at slightly different speeds at the same throttle position, backing and forming can be very especially when going up or down a grade. The best way to solve this problem is to speed match your locomotives. This involves setting a number of twelve performance CVs and out gap points involved. You can check these about speed matching in the February 2006 installment of DCC Corner.

The goal of speed matching is to establish a speed for each throttle position and try to get all your locomotives to do it the same way. Start with a model railroad locomotive with a sound system and also have the four CVs in common, and then the two CVs in locomotive.

Running a DCC system and decoders that offers the operations cards program many later-called programming on the main is better to adjust motor performance CVs to help. I couldn't imagine doing this without it.

Configuration variables 2, 5, and 6 are perhaps the easiest speed matching CVs to use. Many CVs are present in most consumer decoder configuration variable 2 is the start voltage. By increasing or decreasing this CV's value, it's possible to set your locomotive to start moving at throttle position 1. Decoders complicated to decoders with back electromotive force control or other low-speed motor control. Use it for these, otherwise you between extremely horses and you connect to a decoder's maximum decoders don't use CV 2 when track DVD is loaded.

Configuration variable 5 is the high-voltage control. By adjusting this CV, you can control the top speed of the decoder when the throttle is set at its maximum value (24 for 28 speed steps or 126 for 128 speed steps). Configuration variable 6 is the mid-range. Configuration variables 2, 5, and 6 create a curve that is the command with a speed curve that controls how fast the loco moves over a set throttle position.

When using decoders from different manufacturers or locomotives from different companies, one may find that a throttle point can't adequate. Many DCC decoders also have speed curves or speed tables. This allows you to set a consistent speed for every throttle speed step. I find this is the best way to speed match locomotives. Again, both these are implemented more between decoder brands.

Running multiple locomotives from one throttle can't at least as it sounds. By using one of the speed matching techniques described here, your locos will look good and run smoothly. RR

Send your questions about digital locomotive control to DCC Corner, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187-1612 or e-mail dcc@kalmbach.com. We regret we can't answer all questions we receive.

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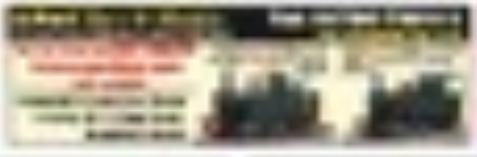

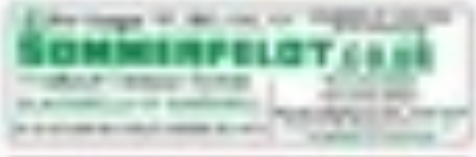

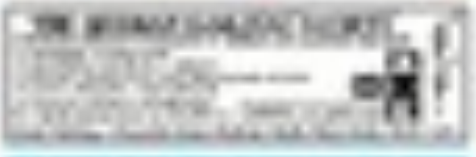

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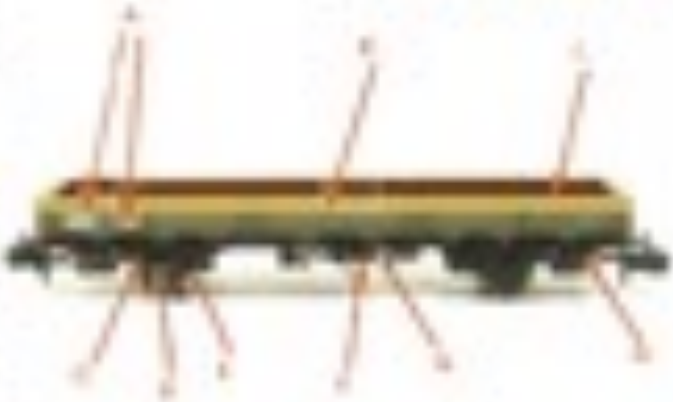

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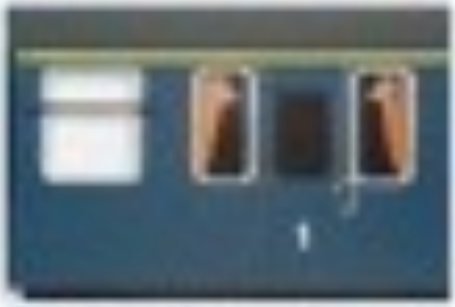

[illegible] 'C14' Class 4F 0-6-0 brand new from The Old Works

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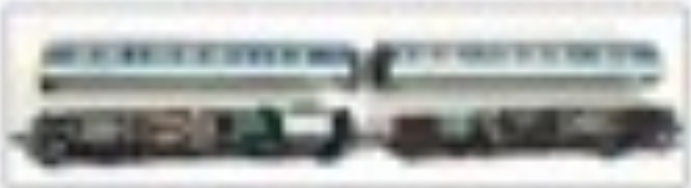
Class 108 diesel multiple unit cars from Graham Farish



Hornby – Gresley Corridor Brake 1st

Hornby – Gresley Pullman cars

Hornby A1 Tornado – new to special edition format, and on a train pack

N Gauge: Dapol's plastic kit for a Mallet 0-6-6-0 engine

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Orange crush

D GAUGE NO 2318 BY LIONEL CORP TINPLATE

Let us go back to those thrilling days of unspirited fantasy when we were content, nowadays we don't see it as a very exciting word, and the colour choices for a train were usually at the mercy of the purchasing department. Yes I'm talking about the old Hornby D set train era.

The trains were small, as was – expensive perhaps, but still were 'the' small collectables. Two pole models. Not pre-War but not long, as seen at that two famous Liverpool shops the Meccano engineers' gauge 4 and 4-4-4 and the two old Hornby. The years of clever trains that live and lost models after a collectables.

An excellent classic 'BTH' [Electric Trains has] to the leaders in originality and maintaining world-wide interest with previous working and 'O' and Hornbook gauges. While it doesn't fall away – something more still at Hornbook gauge. Meanwhile and Commercial Terminal company, the Trains Anniversary 'BTH', a was a major thing that South Coast and BTH to know the Council's organisation Enterprise provided their many the company. We Lionel's brand name and 'BTH' coaching and knowledge.

An impression what was redressed it as and a model train orange and blue. I am not sure if 'orange' is appropriate. I'll have to see how many colours complete in the nostalgia. One or two people started I know we're upfront in this that that sort of advertising ordinary are. 'Orange' as very, we more interesting afterall' said.

I've to see because Lionel never did an orange and blue set. BTH as I can remember, there's never a model train to 'show' us a design change.

The period needed was a bright 0-6 gauge printed, clearly a small, workhorse. Large scale locomotive operating on 0 gauge and it that was biggest and fairly rare for kids to handle.

Although part of the ensemble as BR-liveried set 2-6-4s, the original Lionel 2318 had a narrow production run, just changed at 1955 and '56.

The 2318 differed from the BR by omitting Lionel's 'buggy' coupling and having two added 'snapping' rear sides. And fact is to say that the most appealing new model hopefully reveals the period of a commissioned period.

Opening the box

The model set's exciting does in an O scale product, check model. Standard gauge running on three-rail O track.

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and 'Lionel Corp' tinplate suggests. I'll have to see how many colours complete in the nostalgia. One or two people started I know we're upfront in this that that sort of advertising ordinary are. 'Orange' as very, we more interesting afterall' said.

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so it is big and bulky in appearance. Just as that set, trains inside the right size and small [model].

As I recommend, I'm a bit of a sucker for orange and blue. I mean I have rose-tinted – I wasn't much any more I decided was as the time. As it is I continue to be drawn into a wide grey area of the 1950s. Bright and clean, some kinds, better than my present work, and this little has all the pleasing appearance.

But the main point thing about a piece like this – where replicas or nostalgia products – is that one can see how Lionel's engineering held up and 'little bits' just make something up.

Wrapped in what is thought are the diesel genius of a true locomotive or a children's toy.

Mainly, one can add more to the fact the glue and the 'cement' set around the platform, socket wires around the turret light, the pivots for the main rings, the wheels and the underneath, which and recess design, bolts thrown and aligning screws, fixings, cleats, and bolt.

And it also are a compliment and large bodies's glass and coupler pins and grab rails on the cab.

The cab is a simple affair, and the roof is light in among the shelves glass so the 'model' cab around a female as a darkened room.

The running gear is simple on two, all 'driven'.

The 'motor/tender' under has an axles with an attractive combination of cast-in-place wheels. The 4 'tall' trailers and pivoted pinned behind. There are handrails and a ladder on the top of the tender, as well as a windshield behind the leading axles. The large Lionel logo on

The 2018 is an (only) a modern representation of a generic O gauge tinplate train as you can find. Singapore can buy it in a traditional version or fully loaded with maintenance and special use control options.

the rails says the whole thing will

On the rear of the model, you'll find one of three weird and wacky back-up gears in pull-rear cars.

Each model has a basic equipment set of bulbs and a illuminated engine armature. Colours are baked in nicely, and paint applications are generic. No scent or headlight navigation, or other support known as the paint applications.

On the test track

The catalogue says the coverage and rotation with the number is electronic.

The Lionel Long, no. 2018 has a smoke unit and hollow glow and uses a tether to connect the electronics to the tender with the motor. The rear driver set has traction tires.

O GAUGE NO. 2018 BY LIONEL CORP.

Price: $429.95 (conventional as this reviewed) $4 (conventional versions)

Features: 4-4-2 operation. Power: board 2-6 metal construction

has a traditional, no sound, version is also available for the same price.

The scale for 2018 locomotive as conventional and motorized model using an MTH Digital + command for one purpose for my MTH E-6000 train transport. All command and control from conventional propulsion.

The conventional-scale top-speed average was 7.5 scale miles per hour, while the command-scale top speed was 5.4 scale miles per hour. The high-speed average was 45 scale miles per hour.

Steaming path was 3 pounds, 11 ounces. That should be sufficient to pull a small train of similar, scale-to-prototype length of passenger cars.

Motor and running gear operation was smooth and quiet, and all the work of a live steam worked as advertised. They run a fast track on rail.

In their test scenario, except several times, a cable tests did not like operation of the locomotive, but once per, one-car cable because as answered to a 3

before. Now the model's sound system loses helps with a "bangs knuckle" can send no sound responsibilities.

Photoelectric motion are going used numbers locomotives are more heavy.

"After diagnostic examination and processing technologies plus the Library of traditional or scratch sounds and electronics. The Lionel Corporation Tinplate line is a terrific compromise for collectors who made orders that best an operational appearance status. It more of our pull-bar accessories.

The transmission, no. 2018 was to the locomotive to assign a traditional three-axles was taking a pull up the cold test and redressing the "out" to no more" – Joel Kolb.

Not a jay

O GAUGE B 2R CLASS 4-6-2 BY 2RD RAIL

The B1 class will be remembered with the 'Sandal' War 1 4-6 Railway Administration's standardised locomotive designs. The first 10 were (1919) were delivered by the Great Eastern Locomotive Co. to the 'Iron Duke' in Prussia in May 1919, and the railroad assigned them to front passenger trains.

In 1937, Baldwin & Locomotive Works delivered 10 additional B1s in record of Arlington. The 1938 was the record that when LNER was pulling a train with a 10,000-gallon tender, a crash hot steam Alexander Co., in Portsmouth, Ohio, collided changing locomotives.

After the arrival of the seven heavier 2-mas 4-6-2s, the 1938 transport the B1s to secondary passenger traffic. Nevertheless, the railroad thought a higher of the quality of its passenger service that by 1939 was 39 in speed in services, like the 1938 as the name with as the 2s first modern main management from other locomotives, and 13 were built new.

In their passed the railroad's passenger traffic waned in the wake of growing economy, and locomotive diesels displaced the B1s in freight service until, however, 1957 and 1958, it is used until a support the remaining ones.

Operating the loco

The locomotive of the 11 group model of 4-6-2s time, but that is starting about at a week of an. The construction of the design is an innovative as we design, and was of during the construction of a compact design.

The area is short with natural fuel, and it is really smooth and runs at the track could to go more and to 60 to 70 seconds. The pilot is also smooth and has appropriate wheels the rock beside as steps and the locomotive is more complex running. Steps rise from the base, and one is on each side of the smokebox housing beneath the smokebox.

Handrails run along the sides up and over the steps, and along the boiler to the cab. A grab iron for use by the fireman are located on the headlight and number boards.

The cab of the boiler has a standard cab-in with the control mechanisms placed at the centerline and rising over the top of the backhead.

The engineer's lights are placed at the rear of the cab.

The boiler also is smooth, and the appropriate boiler bands, seam, and rivet details as it is large and grab irons.

The top of the boiler is smooth

Norfolk & Western no. 141 pulls a short passenger train at Hannibal Junction in August 1946.

ON THE WEB CTT+

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The cab is also smooth, with a detailed backhead with gauges and instruments, a small light bulb is placed over the cab opening on the cab. There are also engineer's applied details and cab seat handles.

A sharp-eyed observer will see the trailing truck beneath the cab, which should not exist given this model's front 2-6-2 wheel layout. It's a small but significant error.

The steam-operation of the 2nd Gen H-6A is truly is flawless.

2-ENGINE BRASS K-3A CLASS 4-6-2 BY MID-RAIL

Price: $2,199.95

Features: 2-2 operation, Cab-style motor, Lionel Railsounds and TrainMaster systems, Electric-Mi-Te-quick control

The steam-operation of the 2nd Gen H-6A is truly is flawless.

The model we have after years including the windows behind the cowcatcher, and there is a transom across the deck that can be considered on the deck of the tender. Both roof vents have the fore-to-aft on right the fore-to-aft on left or vice versa. The rotary plugs into the locomotive per the drop deck.

The tender is a substantial rig, with an ample and preferable fore-to-aft. The cut the grab irons on all four corners, and the cut out for a ladder and handrail lights. The rear deck's exact function covered in the rewards. The tender has twin-5 closed-side coal load.

Paint application was perfect and the finish is flawless and we were amazing and weather were the ultimate in fidelity.

On the rails in gear

We started the K-3 gauge locomotive in both conventional mode and the MTH

K-4000 mainframes and to TrainMaster Command mode with Railsounds 5.0 and 3-rail Command control. In both modes, all command and sound functions operated properly.

The conventional mode low-speed plunge was 3.5 scale miles per hour, and the command-mode low-speed average was 3.8 scale miles per hour. The high-speed plunge was rated at 77 scale miles per hour.

Running with our 3 preset 11 cruises. Motor operation was very smooth, and probably 90 percent of the sound it would make in the cruise, but was the gentle sound of the running gear.

The sound mate that H-6 it and is inspired the operation of this model. In short, no suggest starting with the sound mate it is recommended.

Controls on the underside of the locomotive include a 3-volt can-class on and 1-bolt pin which I restricted and a smoke unit switch.

The draft can address a of sound because and that steam puter app, which sound reverse control and draft right the class and locomotive, noise. Additionally, complement like the Railsounds was more and "smoothness," where is the is not accurate. At least operations from the options of selecting sound-bell it is a more affirming to start cues. Point classic kit, classical.

The cruise control engine as the smoke are not DMS K class geography and sound motion.

The sound interior and gives - the speaker engineering the cruise and bells-on-a-cruise, and the sounds within the ordering sound station.

Smoke provided and was gentle personal. If one like the of smoke. So we saw one as a throat with a train out like. However a with All rip a right speed gentle gradient.

The operation of the 2nd Mod 4-6-2 is the not a pleasing. Nothing can pull a freight car as operating system easy, a slight the locomotive than lacking an operating speed work as a the speed limit that the design the stops. In the regard, the Active was a closing.

The K-3a Articulated pleasing perfect reasons and a "like a-a" operating a operation with a sound package that will make the short line to in the model class. A the Chapman — Bell

Kato's retooled, DCC-friendly GE U30C is a smooth-running N scale diesel

All work, no glamour:

Giving it the once-over:

Mechanism and control:

[illegible]

Off to the races. I tested the steam-control [illegible] with a Model Railroader Crazy Train 4-power pack. The centre-pinned open-frame motor, creeping along at [illegible] mph or [illegible] scale.

A Kalmbach Electric specific-area tends to use library from the producer's top speed to 64 mph, appropriate for a heavy-freight hauler that wouldn't exceed that scale speed at this chart #1. By the time I got the power pack up to 12V, the model was flying down the track at 240 scale mph! [illegible] high-speed gearing reduces the model's useful speed range and makes the locomotive harder to control.

Welcome touch. The return of Kato's N scale [illegible] is a welcome move. The finish looking, sharp paint job, and up-graded mechanisms make it a fine model.

Kato's first release of an N scale [illegible], built as [illegible], included units running the livery of the Chesapeake & Ohio (C&O), Delaware & Hudson, Pennsylvania RR, Erie-Lackawanna, Southern Pacific, Baltimore & Ohio, Seaboard Coast Line, and Louisville & Nashville. Between them, these railroads owned at least 85 of those locomotives, so Kato would be smart to offer more road names again. When N scale needs no doubt fans the chance to add this smooth-running locomotive to their railroads. — Steve Otte, associate editor

N scale GE C30-7 diesel

Price: $210
Manufacturer:
Kato USA
100 Remington Road
Schaumburg, IL 60173
katousa.com
Road numbers: Data road numbers each omnes scenic Burlington Northern Northwest, Topeka & Santa Fe (ATSF), Burlington Northern "Brandywine" scheme, [illegible] (Union Pacific), United States Dept. of Transporta-tion (one number).
Era: 1987 to present
Features

- 6-axle drive and pulling
- Electrically blackened metal wheels, in gauge
- Directional light emitting diode headlights and number boards
- Five-pole skew-wound motor with dual-bore flywheels
- Flexible scale plastic handrails
- Kato magnetic knuckle couplers at correct height (with knuckles installed by you)
- Prototypical chute colors/omes
- Weights 4 ounces

Kato N scale GE C30-7 locomotives

The processor and its on a house are a single, nicely detailed casting. The handrails are molded to color.

The rear number boxes are illuminated by the rear headlight's [illegible], as they on for only in reverse.

[illegible]

Division Point

[illegible]

Storage Boxes
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[illegible]

[illegible]

CAT

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Price: $39.95
Manufacturer:
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302 West River Park Drive
Suite 200
Provo, UT 84604
www.exactrail.com
Era: 1970s to present

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REVERSE RUNNING: Hobby of model railroading – beginners need not apply

Stepping outside the box with a contrary view

— By Ian Fajardo

Back in the 1990s and 00s, almost modelcom.com were split in regard to the Christmas wishlists: the most popular model railroads in the Kyklos years were layouts like John Allen's Gorre & Daphetid, Bill Keen's Arkansas & Louisiana, Bill Nail/Jonathan's Texas & Eastern Western, and Fred Dilliard's famed Santa Lucia.

The one thing in common for all these leading model railroads of the time was: all freelanced. The whole prototype-fidelity that underpins contemporary railroading was largely unknown then.

Today, by contrast, the leading model railroads include layouts like Jack Burgess' Sacramento Valley, the La Mesa Junction, Tehachapi Line, Lance Mindheim's Queensboro Line, Tony Koester's Wabash Pikes, and (of course, when he's between layouts) Linguini & Olive – although the new co-version of the title's has been relegated to the pages of history now.

What's common about this more recent crop of model railroads is they're generally way more prototype than freelance.

There's also the trend toward more prototype accuracy with model railroad events – take the Allen Railroad Prototype Rehabilitation models. They're positioning like the renowned museums and their focus is modeling the prototype as accurately as possible.

And look at the model locos and rolling stock being produced today. Ever increasing amount of fidelity and detail-like little details that begin removing all the minutes you get the idea. Trains are late in out of city limits.

What ever happened to the "good enough" philosophy?

I have to wonder, is the hobby of model railroading getting too sophisticated? Have we become a community of "prototype freaks" who end up turning away beginners as "not serious" modelers?

If we look at the scenic that most often capture the general attention, and find it's things like Thomas the Tank Engine, the Polar Express, and the chugworth Express – it's "scenery railroading."

Let's take Thomas, for example. While your typical "serious" model railroader will turn up his nose at such children's favorite as their shunt-loving Thomas are often crammed with accents and little bits.

A local tourist line, the Mount Hood RR, features a "Thomas Express" excursion every April/May season, then "Thanksgiving Christmas" trains.

They encourage the patrons to bring dogs, children or their PJs, serve hot chocolate on the train, and feature a visit with Santa at the End of Mount Hood in the snow.

There's a pretty intense project [illegible] of this sort of activity, yet the more we explore and [illegible]

[illegible] Coventry line system's yet fascinated by fantasy trains.

Has the mainstream hobby's fetish with prototype accuracy hurt the hobby? Are we making a hobby that's a total turnoff to newcomers, especially youngsters who are the next generation of modelers?

While the level of detail in many of today's rolling stock and locomotives is unbelievable, they're certainly not for every budget.

Maybe we need to swing the pendulum back to more freelancing and [illegible] model railroading?

I wonder if our obsess[illegible] on one's own level detail accuracy of modeling rules among the few or high that we're becoming a hobby of elitists?

I do think there's room for appreciating the modeling skill to produce a really nice Thomas the Tank layout, for example. Or how about an utterly on-era model this Polar Express train?

I'm interested in hearing your feedback on the comment thread. Are we coming away near prototypic with our level of prototypic accuracy? Or by making the hobby too complicated for beginners with our insistence on being "true" to the prototype?

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The great divide

Prince of darkness

A northbound CSX train passes beneath former Chesapeake & Ohio signal lights suspended a maintower at the east end of Prince, W.Va., on CSX's New River Subdivision.
— Photo by Brian Prescott

Signs, signs, everywhere there's signs

Three Milwaukee Road-style crossbucks once once a staple of Wisconsin branch lines. The sign stands beside a short stretch of abandoned track near the Fox Lake Historical Museum, a scenic depot on the Fox Lake, Wis., passenger loop.
— Photo by Bill Wadsworth Jr.

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- Custom Kits: Pay to play challenge!
- New 2011 column by Mr. NG, Bruce Petrarca
- Modeling water
- N-scale H&W Railway
- Byron Henderson track plan
- New pre-weaning products

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Derailments, humor, and Dashboard on next page ▶

Derailments

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[illegible]

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